l. 29 JANUARY, 1943 No. 1

American Journal of Orthodontics and Oral Surgery

THE LIBRARY OF CONGRESS
FEB 22 1943
COPY 2
CENTRAL SERIAL RECORD

FOUNDED IN 1915

CONTENTS

ORTHODONTICS

President's Address. New York Society of Orthodontists. Sidney E. Riesner, D.D.S., F.A.C.D., New York, N. Y. --- 1

Retention. Bercu Fischer, D.D.S., New York, N. Y. --- 5

Applied Orthodontics in Orofacial Prosthesis. Jacob C. Lifton, D.D.S., New York, N. Y. --- 18

End Tube Pinching Plier for Johnson Twin Arch. Abraham Wolfson, D.D.S., Newark, N. J. --- 30

Heredity and Genetics. Wilburt C. Davison, M.D., Durham, N. C. --- 33

Fabricating Chrome Alloy Into the Different Types of Treatment Appliances. George H. Herbert, St. Louis, Mo., and Collaborators --- 38

Editorial. Dr. C. C. Howard Retires --- 41

Orthodontic Abstracts and Reviews --- 45

News and Notes --- 57

Officers of Orthodontic Societies --- 60

ORAL SURGERY

An Unusual Case of Hereditary Fibrous Osteodysplasia (Fragilitas Ossium) With Replacement of Dentine by Osteocementum. K. H. Thoma, D.M.D., M. C. Sosman, M.D., and G. A. Bennett, M.D., Boston, Mass. --- 1

An Unusual Case of Discreet Miliary Calcifications of the Cheek Probably Arising as a Result of Acute Parotitis Complicating Eclampsia. Edward V. Zegarelli, A.B., D.D.S., and Daniel E. Ziskin, D.D.S., New York, N. Y. --- 31

Ameloblastoma. Robert L. Harding, D.D.S., M.S., Danville, Pa. --- 36

Degree of Epithelial Keratinization of the Right Maxillary and Mandibular Mucobuccal Fold. Carl August Schlack, D.D.S., and Edward Neville Gardner, D.D.S., Washington, D. C. --- 48

Sarcoidosis of the Jaw. David L. Poe, M.D., New York, N. Y. --- 52

Case Reports: No. 75. Jaw Metastases in Chondroblastic Osteogenic Sarcoma. Irving H. Goldstein, D.D.S., and Marvin C. Goldstein, D.D.S., Atlanta, Ga. --- 57

No. 76. Tumor of Maxilla. Edward C. Armbrecht, D.D.S., F.A.C.D., and C. W. Apple, A.B., D.D.S., Wheeling, W. Va. 60

Editorial. Postgraduate Dentistry --- 65

Abstracts and Reviews --- 66

Published by THE C. V. MOSBY COMPANY, St. Louis, U. S. A.

COPYRIGHT 1943 BY THE C. V. MOSBY COMPANY

FEB 18 1943



RESULTS?

OR

Consequences?

Your procedure outline may be right . . . your execution may be perfect . . . yet the outcome is dependent upon the basic material used in the appliance.

DEEORTHO Band Material and DEEPEP Wire dissolve this question mark for you . . . with a record of endorsement by Orthodontists at home and abroad who have used and proved the merit of these precious metal specialties.

They are true gold-platinum alloys formulated specifically to meet the most exacting needs of the Profession . . . to assure definite final results . . . and to accomplish this with the least expenditure of time and energy.

DEEORTHO and DEEPEP are the perfect components for appliances, simplifying assembly, easily adaptable to changing conditions, and always impervious to stain and oxidization in the mouth or under flame.

GENERAL OFFICES AND PLANT 1900 W. KINZIE ST.

THOMAS J. DEE & CO. *Precious Metals* CHICAGO

DOWNTOWN OLD GOLD AND SALES OFFICE 55 E. WASHINGTON ST.

Vol. 29, No. 1, January, 1943. American Journal of Orthodontics and Oral Surgery is published Monthly by The C. V. Mosby Company, 3525 Pine Blvd., St. Louis, Mo. Subscription Price: United States, Its Possessions, Pan-American Countries, $8.50; Canada, $10.00 (Canadian Currency); Foreign, $9.50. Entered as Second-class Matter at Post Office at St. Louis, Mo., under Act of March 3, 1879. Printed in the U. S. A.



RK1
.A615

Orthodontics

EDITOR-IN-CHIEF
H. C. POLLOCK

ASSOCIATE EDITORS

Oren A. Oliver James D. McCoy Charles R. Baker Joseph D. Eby
Paul G. Spencer S. A. MacKenzie Henry F. Hoffman

CONSULTING EDITOR, DENTISTRY FOR CHILDREN
Walter T. McFall

ABSTRACTS AND REVIEWS
Associate Editor, J. A. Salzmann

VOLUME 29
JANUARY—DECEMBER, 1943

Office of the Editor: 8022 Forsythe Boulevard, St. Louis
Published by The C. V. Mosby Company, St. Louis

COPYRIGHT, 1943, BY THE C. V. MOSBY COMPANY
(All rights reserved)

Printed in the
United States of America

Press of
The C. V. Mosby Company
St. Louis

©CIB 575463

FOR THE RELIEF OF pain

DUE TO DENTAL INSTRUMENTATION AND EXTRACTION



Many dentists routinely give one or two Anacin* tablets following instrumentation or extraction. Patients appreciate receiving Anacin and usually benefit from its analgesic and sedative action. Why not use Anacin in *your* practice?

*Reg. U. S. Pat. Off.

THE ANACIN COMPANY • JERSEY CITY, N. J.



Blackout Pain WITH MONOCAINE

You build your practice on the favorable reaction of patients. Picture the mental condition of the average patient. He is nervous and apprehensive. The fear of pain has probably kept him away until the last possible moment.

Now... the sure, unfailing effectiveness of the local anesthetic you use takes on vital significance. Deep, profound, uneventful anesthesia with Monocaine can blackout the fear of the dental office; can make him and his family grateful patients.

That's why so many dentists rely on Monocaine HCl, the new, safe local anesthetic. For Monocaine produces the "I didn't feel a thing" type of anesthesia on all kinds of patients.



The word "Monocaine" is the registered trade mark of Novocol Chemical Mfg. Co., Inc., designating its product 2-isobutyl amino ethyl para amino benzoate.

NOVOCOL CHEMICAL MFG. CO., INC. • BROOKLYN, N.Y.

Oralium Band Material



ALL THE ADVANTAGES OF PURE PLATINUM WITH THE STRENGTH AND DURABILITY OF ORALIUM

BECAUSE pure platinum is completely immune to the action of mouth secretions and never develops oxides during annealing and soldering, it would be the one perfect material for orthodontic bands, if it had the other indispensable qualities, but it hasn't.

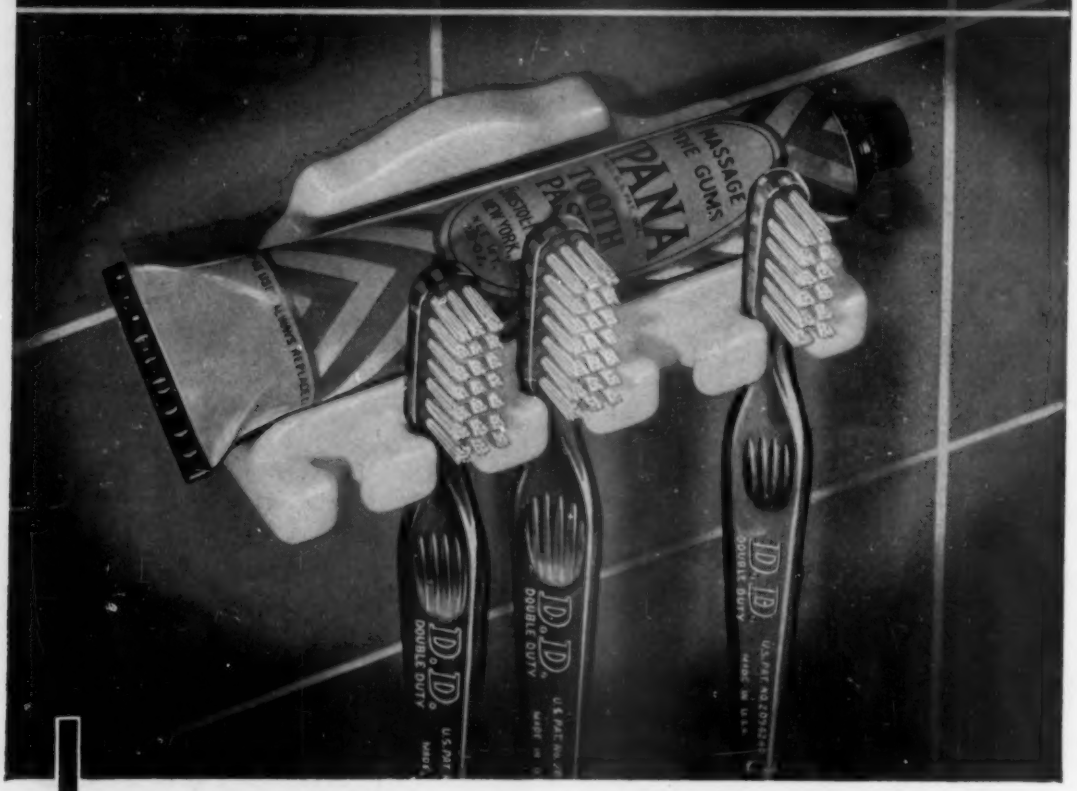
Just the same, you can secure the advantages of pure platinum and still have bands with all the necessary attributes. Oralium Band Material is just this happy combination with its surfaces of pure platinum, so securely welded to an Oralium body that the two have become practically one piece of metal. Oralium is the precious metal alloy which has been used for so many years to construct literally tens of thousands of prosthetic cases. So, even if you grind through the platinum, you expose nothing but tarnish-resistant precious metal.

The principle involved in Oralium Band Material is the same as in Baker Platinum-Clad used in the chemical industries for making chemical apparatus—pure platinum securely welded to one or both faces of another metal. In the chemical process industries, such apparatus must resist the action of powerful acids and other agents. Can anything be sounder than the application of this principle to orthodontic use?

BAKER & CO., INC.
113 Astor St., Newark, N. J.

30 CHURCH ST. NEW YORK
55 E. WASHINGTON ST., CHICAGO
760 MARKET ST. SAN FRANCISCO

LET'S BRUSH UP ON IPANA AS A DENTIFRICE



IT'S GOT EVERYTHING FOR ALL THE FAMILY



IPANA POSSESSES ALL THE QUALITIES A GOOD DENTIFRICE SHOULD HAVE. It is definitely an effective tooth cleaner and polisher, bringing out all the natural lustre of teeth. IPANA is gentle, scratchless—has no harmful abrasives. The mouth feels refreshed and pleasant after its use. IPANA has just the right consistency for maximum brushing efficiency. All in all, it is a scientifically formulated tooth paste.

▶ IPANA and Massage send fresh rich blood going through gingival capillaries, step up local nutrition, help metabolism and are beneficial in maintaining firm, healthy gums.

IPANA
TOOTH PASTE

Bristol-Myers Company, 19K West 50th St., New York, N. Y.



For That Final Touch of Perfection

When the appliance is fitted and finished, soldering or other operations involving the application of heat may have created a disturbance of physical properties in the metal . . . spots of variation that leave the final results just short of perfection.

The remedy is simple, speedy, and certain. A brief immersion in the DEE HEATREAT UNIT restores the original uniformity throughout the appliance. This auxiliary unit, along with DEEORTHO Band Material and DEEPEP Wire, is Dee & Co.'s contribution to the betterment and simplification of Orthodontic appliances.

May we send you details and copy of the Dee Physical Properties Chart?

GENERAL OFFICES AND PLANT 1900 W. KINZIE ST.

THOMAS J. DEE & CO. Precious Metals CHICAGO

DOWNTOWN OLD GOLD AND SALES OFFICE 55 E. WASHINGTON ST.



Again . . .

TRU-CHROME SETS THE PACE

With the finest quality stainless steel wire we've ever offered . . . in all sizes

- NO BRITTLENESS
- PERFECT, SMOOTH FINISH
- TENSILE STRENGTH 280,000 POUNDS PER SQ. INCH

We're setting new records in already high standards for quality of stainless steel wire . . . and you'll agree when you get your next shipment of Tru-Chrome. The perfect, smooth finish—the complete absence of brittleness—the extremely high tensile strength make this, beyond a doubt, the finest Tru-Chrome has ever offered.

EXCLUSIVE with TRU-CHROME — Now, Tru-Chrome provides .010 and .011 Twin Arch wire in naturally shaped arcs instead of on spools. Eliminates waste, saves time, gives better results. *Note, too, that this is at the $1.10 price, instead of $2.20 as formerly.*

HARD WIRE Superlative Quality		LIGATURE WIRE Bright—Fine—Dead Soft	
1 OUNCE . . .	$1.10	1 OUNCE . . .	$1.10
¼ POUND . . .	3.30	½ POUND . . .	3.50
½ POUND . . .	6.00		
1 POUND . . .	11.00	1 POUND . . .	7.00

In its recent order permitting the profession to purchase Tru-Chrome materials, for use in the mouth, without priorities, the War Production Board urges that orthodontists limit their orders to their actual needs. To that end, Tru-Chrome pledges every effort to insure safety and speed of all shipments.

ROCKY MOUNTAIN METAL PRODUCTS, Inc.

1450 Galapago St. Box No. 183

DENVER, COLORADO

Thriftily Priced!

JELENKO

THRIFTOFLEX

Orthodontia Materials
Platinum Color - Palladium Alloy

A COMPLETE line of high quality, standard type orthodontia materials. Excellent physical properties; resistant to mouth discoloration. Easily worked; economically priced.

Made in all standard widths, gauges & sizes.

Band Material	per dwt., $1.35
Wire (R & HR)	per dwt., $1.35
Tubing (R & HR)	per doz. tubes, $2.45 to $5.60
HR Shafting	per dwt., $1.35

Price List and Catalogue on request.

J. F. JELENKO & Co., Inc.
Dental Golds & Specialties
136 West 52nd St., New York, U.S.A.

OUR BOYS NEED
BOOKS



SEND
all you can spare

Either take them to the nearest branch of your public library or ask your bookseller to send them to the boys in the service. He will do the rest.

EASY TO WORK WITH

Satisfied users of S-C Cement tell us that one of the reasons they prefer this easy-to-work-with cement is that it sets quickly—but not too quickly. And when S-C does set, the tooth it fills is "set" for years.

S-C CEMENT



BUY THE 1-POUND ECONOMY PACKAGE

MAIL THIS COUPON FOR FREE SAMPLE

Stratford-Cookson Company
4058 Haverford Ave., Philadelphia
Please send me my free sample of S-C Cement. I'll be very glad to try it.

Name_____

Street_____

City & State_____

THE MARK OF MERIT • STRATFORD-COOKSON COMPANY

STRATFORD-COOKSON COMPANY
Manufacturers of Dental Supplies
4058 HAVERFORD AVENUE • PHILADELPHIA

New Second Edition

OPERATIVE ORAL SURGERY



- **WAR WOUNDS**
- **STADER SPLINT**
- **CHEMOTHERAPY**
- **SHOCK**
- **BURNS**

By LEO WINTER, D.D.S., M.D., F.A.C.D., (Hon.) LL.D., Professor of Oral Surgery, New York University; Director of the Oral and Minor Surgery Clinic, New York University College of Dentistry.

1075 pages, 1207 illustrations, 10 color plates. PRICE, about $12.50.

In order to adapt "OPERATIVE ORAL SURGERY" completely to present-day needs, both military and civil, for this 1943 edition Dr. Winter has . . .

retained all features you liked and found of value in the first edition . . .

added features which gear the book to a current pace—solve your current problems.

Revision has been careful and rather complete. Seven entirely new chapters are included, more than 80 new illustrations.

Attractive new features include a chapter on SKELETAL FIXATION—describing the history-making STADER SPLINT and its uses; an illustrated method for a simplified procedure of coaptation and immobilization of various jaw fractures in the chapter on WAR WOUNDS.

Chapters on CHEMOTHERAPY, SHOCK, BURNS OF THE FACE: discussion of SUBLUXATION AND DISLOCATION OF TEMPOROMANDIBULAR ARTICULATION: the part of VITAMINS in blood dyscrasias.

Praise from Press . . .

Dental Items of Interest: "In many cases a series of illustrations are employed to clarify a single point. They are so clearly used that in several instances they appear almost *as effective as a miniature motion picture.*"

Illinois Dental Journal: "The chapter dealing with fractures might well be learned by heart by those who expect to do any work with the wounded. . . . Only those procedures which have stood the test of experience are included in this text and neither student nor practitioner can afford to be without it."

THE C. V. MOSBY COMPANY MJ
3525 PINE BLVD.
ST. LOUIS, MO.

Gentlemen: Send me Winter's Second Edition "OPERATIVE ORAL SURGERY," price, about $12.50.

____ Attached is my check. ____ Charge my account.

Dr. _____

Address _____



THE LONELINESS OF PAIN

The first human cry in the wilderness was to summon help for the relief of pain. Today, the first mission of medicine is still to ease the acute discomfort of pain.

In the service of pain-relief, Peralga gives unusual satisfaction. Combining the pain-relieving properties of acetophenetedin and acetylsalicylic acid with the sedative action of barbital, Peralga not only mitigates promptly the suffering from headache, migraine, neuralgia, dysmenorrhea, earache and other painful conditions, but also quiets the attendant nervous symptoms without causing incapacitating drowsiness.

For prompt and sustained analgesic action with a mild sedative effect, try Peralga. A complimentary supply will be gladly sent you.

Peralga, 7-grain tablets, is available in boxes of 6, 12, 50, 100 and 500; powder in bottles of ½ and 1 ounce.

SCHERING & GLATZ, Inc., 113 West 18th Street, New York City

ANNOUNCING

THE 1942 VICTORY MODEL of the UNIVERSAL BRACKET

Embodying even further improvements in the chief attachment used in this most modern of techniques.

Also, A McCOY OPEN-TUBE, for .030 wire, WHICH HAS PROVISION FOR PASSING A LIGATURE WIRE THROUGH THE ATTACHMENT to tie in arch wire when desired.

In strips of one dozen @ $1.25 or twelve strips (gross) for $14.00.

RET. ALTER :: P. O. Box 7 :: Pasadena, California

"ALTER products are never sold through supply houses"

NOW *Ready*

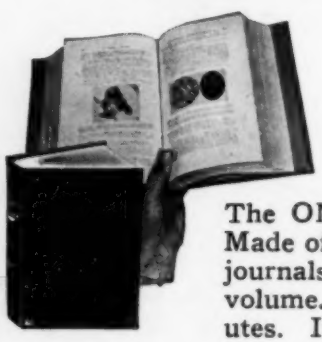
OUTLINE OF THE CHEMISTRY OF DENTAL MATERIALS

By **LAURENCE G. WESSON, Ph.D.**, Research Biochemist, Forsyth Dental Infirmary for Children, Boston, Mass. **Price, cloth, $1.50.**

This new book of 106 pages presents an outline of the chemistry that the dental practitioner and the dental hygienist will find useful. The application of these principles to the detailed information contained in technical handbooks may also be of value.

Order today from THE C. V. MOSBY CO., Publishers, St. Louis, Mo.

A Handsome Permanent Binder for the American Journal of Orthodontics and Oral Surgery



ONLY **$1.25**

The ONLY binder that opens flat as a bound book! Made of durable imitation leather, it will preserve your journals permanently. Each cover holds 12 issues, one volume. Do your own binding at home in a few minutes. Instructions easy to follow.

Mail coupon for full information and binder on 10-day free trial.

MAIL COUPON TODAY

SUCKERT LOOSE LEAF COVER CO.
234 W. Larned St., Detroit, Michigan
Mail postpaid _____ binders for American Journal of Orthodontics and Oral Surgery for years _____
Will remit in 10 days or return bindings collect.
Name _____
Address _____
City _____ State _____



Recipe for Easy Accurate Impressions

zēlex

REG. U. S. PAT. OFF.

Zelex couldn't have come at a better time. The result of more than a year's research in the Caulk laboratories, this utterly new impression material was perfected just as hydrocolloids became "war casualties." Now it's ready for use!

Simply mix Zelex powder with water, stir until texture is smoothly homogeneous, load in tray, and place in patient's mouth. No boiling! No cooling! No broken pieces!

Ask for the Zelex Carton. 12 individual portions of Zelex powder, only $4.00; 3 cartons @ $3.75 each.



For Modern Materials...Call on **CAULK** MILFORD • DELAWARE

ANNOUNCING

THE 1942 VICTORY MODEL of the UNIVERSAL BRACKET

Embodying even further improvements in the chief attachment used in this most modern of techniques.

Also, A McCOY OPEN-TUBE, for .030 wire, WHICH HAS PROVISION FOR PASSING A LIGATURE WIRE THROUGH THE ATTACHMENT to tie in arch wire when desired.

In strips of one dozen @ $1.25 or twelve strips (gross) for $14.00.

RET. ALTER :: P. O. Box 7 :: Pasadena, California

"ALTER products are never sold through supply houses"

NOW *Ready*

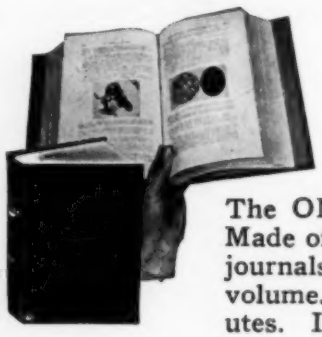
OUTLINE OF THE CHEMISTRY OF DENTAL MATERIALS

By **LAURENCE G. WESSON, Ph.D.**, Research Biochemist, Forsyth Dental Infirmary for Children, Boston, Mass. **Price, cloth, $1.50.**

This new book of 106 pages presents an outline of the chemistry that the dental practitioner and the dental hygienist will find useful. The application of these principles to the detailed information contained in technical handbooks may also be of value.

Order today from THE C. V. MOSBY CO., Publishers, St. Louis, Mo.

A Handsome Permanent Binder for the American Journal of Orthodontics and Oral Surgery



ONLY **$1.25**

The ONLY binder that opens flat as a bound book! Made of durable imitation leather, it will preserve your journals permanently. Each cover holds 12 issues, one volume. Do your own binding at home in a few minutes. Instructions easy to follow.

Mail coupon for full information and binder on 10-day free trial.

MAIL COUPON TODAY

SUCKERT LOOSE LEAF COVER CO.
234 W. Larned St., Detroit, Michigan

Mail postpaid _____ binders for American Journal of Orthodontics and Oral Surgery for years _____
Will remit in 10 days or return bindings collect.

Name _____

Address _____

City _____ State _____



Recipe for Easy Accurate Impressions

zēlex

REG. U. S. PAT. OFF.

Zelex couldn't have come at a better time. The result of more than a year's research in the Caulk laboratories, this utterly new impression material was perfected just as hydrocolloids became "war casualties." Now it's ready for use!

Simply mix Zelex powder with water, stir until texture is smoothly homogeneous, load in tray, and place in patient's mouth. No boiling! No cooling! No broken pieces!

Ask for the Zelex Carton. 12 individual portions of Zelex powder, only $4.00; 3 cartons @ $3.75 each.

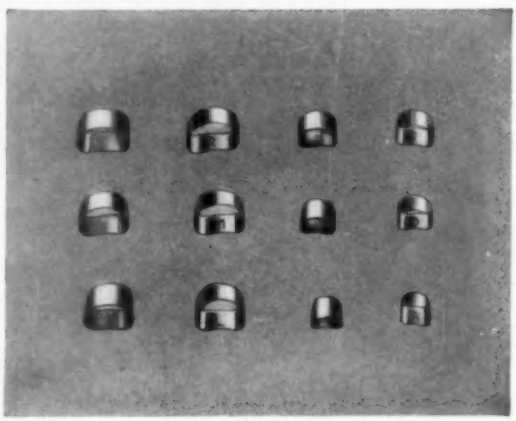


For Modern Materials...Call on **CAULK** MILFORD • DELAWARE



Think of The Minutes Saved!

WITH WILLIAMS READY-MADE INCISOR (OR ANTERIOR) BANDS



• Every time you adapt an anterior band you save many valuable minutes, and achieve a snug, permanent fit — with Williams Seamless Ready-Made Incisor Bands. Pre-formed with correct taper and contour, these bands eliminate painstaking pinching, cutting and soldering. The technique is simple—the results consistently satisfactory.

The graded series of sizes of Williams Incisor Bands provides a band for every size of anterior tooth—yet, for simplicity the number of bands has been kept to a minimum. This means fewer bands to keep on hand—easier selecting of the correct size.



Made of non-corrosive gold-platinum alloy, these bands possess an extremely high ductility plus exceptional edge strength. Complete assortment, two each of 18 sizes for uppers and lowers in convenient wood container, if desired. Full details on request.

WILLIAMS GOLD REFINING COMPANY, INC.

Buffalo, N. Y. Ft. Erie, N., Ontario Havana, Cuba

Williams • SEAMLESS • INCISOR BANDS

(or Anterior)

JANUARY, 1943

Orthodontics

EDITOR-IN-CHIEF
H. C. POLLOCK

ASSOCIATE EDITORS

Oren A. Oliver James D. McCoy Charles R. Baker Joseph D. Eby
Paul G. Spencer Richard E. Barnes Henry F. Hoffman

CONSULTING EDITOR, DENTISTRY FOR CHILDREN
Walter T. McFall

ABSTRACTS AND REVIEWS
Associate Editor, J. A. Salzmann

Office of the Editor: 8022 Forsythe Boulevard, St. Louis
Published by The C. V. Mosby Company, St. Louis

American
Journal of Orthodontics
and Oral Surgery
(All rights reserved)

VOL. 29 JANUARY, 1941 NO. 1

Original Articles

PRESIDENT'S ADDRESS

NEW YORK SOCIETY OF ORTHODONTISTS

SIDNEY E. RIESNER, D.D.S., F.A.C.D., NEW YORK, N. Y.

IN JANUARY, 1942, Americans throughout the land listened to the stirring recital of their President in his annual report of the state of the Union.

Since it is the custom of our Society to have an annual report of its president, as it relates to the state of our Society, its record, its aspirations and ambitions, today in a modest and much humbler way, I stand before you fulfilling this custom with a brimming sincerity and full sense of responsibility.

As President Roosevelt's report was concerned with the martial way of life in a nation, so does our year's history of our orthodontic activities echo the quickened military step with our scientific trend.

Being president during a national crisis such as we are witnessing today, carries with it considerations that are peculiar only to wartime. War is like pain. There is nothing that changes your indifference to it so quickly as experiencing it yourself. It must be apparent even to the least unmindful of us now, that we are a part of this titanic struggle, both as individuals and as a profession. It is reflected in our daily practice, in many ways to some; to others it means total abstinence or suspension of practice.

The depletion of our Society roster through Service enlistment and fulfilling national obligations brings us to a critical situation. The Committee on Military Affairs sent out a questionnaire that was calculated to supply our National Dental Chief with information that could be turned over to an appropriate National Committee. This committee could make recommendations and adjustment in all orthodontic ranks to provide adequate care for the children of America as regards their mouth health and orthodontic problem. It would also take care of orthodontic practices of those who were called to the colors.

Delivered before the New York Society of Orthodontists, Feb. 23, 1942.

I regret to report the response was only about 50 per cent, perhaps through a lack of realization of the importance of the requested information. There were others who were reluctant to reveal what they believed to be information of too personal a nature. To all those, let me appeal for them to act more generously this time, when they will have a second opportunity to volunteer this information in a similar questionnaire being sent nationally. Let me assure you all information is held in strict confidence and discretion. The time is later than you think. It is a patriotic privilege that should be honored with the responsibility it deserves. Let us be loyal, helpful American orthodontists and help our patriotic professional confreres.

It was our custom in World War I to offer the remission of dues to members actively engaged in the service of their country. It is fitting, and no less appropriate, that this practice be observed in this war with the allowance as provided for the cost of our official organ, the AMERICAN JOURNAL OF ORTHODONTICS.

Another problem of perplexing and rising importance is the question of employing the central influence of our Society in helping our members to receive the requirements of their supplies of orthodontic necessities in their daily practice. I have received personal calls and correspondence from New York Society members, appealing for instructions on how to proceed in getting orthodontic supplies denied through priority rights of assignment. In several of these cases I have referred their petitions to our President of the American Association of Orthodontists, Claude Wood, where it rightfully belongs, so that the weight of national influence will bear in delivering the needed help.

There is a scarcity of some materials, like chrome alloys, and hydrocolloids, ligature wires and elastics, but not of such a dire nature as to deprive the individual of his ability to practice or to be totally denied. Do not hoard and create a scarcity or run on the product, but order in moderate quantities.

The orthodontic educational problem perhaps has never had a more comprehensive review and cogent statement of its purposes and limitations, than the sound and thoroughly commendable article prepared by Dr. Leuman M. Waugh, for our last New York Society meeting. Under the title of "Orthodontic Education and Licensure," he guided us through a program for undergraduate study in orthodontics as well as offering the recommendations for discontinuing licensure of proprietary orthodontic schools, whose prime consideration was the profit motive.

Dr. Waugh's recitation would in itself serve as an admirable basis for a presidential report, but I am only briefly alluding to the highlights of the past year's activities, and I salute with pride this forward step in helping us achieve another ideal that our founding fathers laid out for us.

The revival of Selective Education Clinics proved popular, judging by the early registration returns. It was another manifestation of considering the practical phases of orthodontics. This, in conjunction with the illuminating symposium on the popular therapies of practice today, lent emphasis to the developing trend of employing banded techniques in treatment.

However, the consideration of our practical procedures, while upholding the tradition of high excellence and progress, has not eclipsed our interest or

dependency, on the important groundwork of theory and background that constitutes the essentials of research problems.

The broader collateral fields were prominent in our consideration in the presentations of our programs.

At this point I should like to take the opportunity to thank the committeemen and other officers who officiated during my administration, for their faithful and capable performance of their duties. Helping to maintain the Society on its smooth progressive course is never a one-man job, and to these unselfish helpmates, I wish to express my own, as well as the society's, grateful thanks. The excellence and quality of the balanced programs conceived by the Executive Committee made my problems quite simple and afforded me abiding pleasure to preside over such attractive meetings.

The aid of the Board of Censors and the Advisory Committee was most helpful, and the comfort and strength that was mine through the wise council and sound advice whenever I sought it of that most generous and lovable of our past-presidents, Dr. Joe Eby, is a tribute I earnestly desire to pay him publicly.

As our editorial advisor, he performs a service the extent and importance of which is not too thoroughly appreciated by all of us. In this connection, his able lieutenant, Editor Jack Salzmann, has been indefatigable and thorough in the discharge of his duties.

Our Society grows, and the taller it gets, the wider becomes the horizon around it. The question of a long range program, or a greater perspective in orthodontic treatment, ushers in the problem of prevention through early orthodontic attention. This has been a consideration that has received my kindliest regard. However, the enthusiasm with which one might approach this problem, must be tempered when you consider the limitations that must naturally attend any guiding interferences with growth and development.

Our Public Relations Bureau graduated into national consideration. The New York Society nurtured this committee and the idea behind it, developed and financed it until it could be adopted by our American Association of Orthodontists. We can feel proud of its record.

The sad obligation follows of reporting the name of one of our members who answered the summors of the "Grim Reaper" during the past year. We shall miss Dr. Greenfield's companionship and be conscious of the loss of interest which he contributed.

To our new members, let me admonish them to remember their obligations as orthodontists and members of our Society. The fifteen new members who were added to our roster, are an encouraging manifestation of the progress our specialty has made, in that it holds sufficient interest for this growing number to adopt it as their sole endeavor, while maintaining the high standards required by our Society for affiliation.

Few of you can appreciate the heavy inroads on the personal practice of our Secretary-Treasurer in the discharge of his duties. Many of my burdens were lightened by the unselfish industry of Dr. William C. Keller, and I gratefully acknowledge and thank him. It was with the thought of relieving this office of the burdensome secretarial tasks that could be delegated to a permanent

commercial secretary that the Society has hired such a service. This leaves the Secretary free to perform the duties that are in more urgent need of his attention. It is a worthwhile and appropriate relief and I am happy to have helped initiate it.

A question has arisen whereby consent has been petitioned by members for the privilege of joining either one or both sectional societies where linear boundaries of their state is borderline. It is understandable if the friendship of confreres of nearby states recommends a man to join with that section in their meetings. It is also understandable and laudable for him to express his willingness to bear his share of the expense in conducting a meeting by paying dues in that society. However, if membership privileges are thus granted, it should carry with it the restriction of the power of voting in only one section. This broader interpretation of twin membership is recommended for its social benefit, not to extend political control.

There has been a mounting desire of men interested in orthodontics, but not in the exclusive practice, to affiliate with our society. With the allowance of the probationary associate membership to students of recognized and acceptable orthodontic schools or postgraduate university courses, there comes the call for establishing definite qualifications for this class of membership.

Some men have been under the influence of capable preceptorship. There are others who have not completed restricting their practice to orthodontics exclusively, because of their economic dependency on their general dental practice. More explicit rulings are asked as to what these men can do for affiliation and for the individual who is preparing himself for complete specialization but has not fulfilled the time requirements of our by-laws.

Dour predictions concerning the future of private practice need not cause us too great a concern. If ability and enterprise still exist, it is enough to insure continued personal reward and the ideals of orthodontics to flourish.

I relinquish with considerable regret my presidential tenure. You have made it an experience which always shall be filled with happy memories.

There are not many opportunities offered to the Society in which we so happily can afford to participate, than the one that permits us to use some of our bank reserve in supporting our country's war effort. I believe we will be keeping faith both with our membership and our country, if we purchase National War Bonds with part of this sum. This question will very likely be brought up at an early executive session, and I would ask your full and hearty consent in voting this reciprocally beneficial gesture.

I do not feel I could offer with becoming grace the dictums expected in an address of this nature, and pontificate pompously unbecoming to my years. It is with a sincere humility that I have reported the results of my experiences of the past year. However, we need have no anxieties if the orthodontic future is but a greater mirror of the immediate present. You have shown a splendid cooperative spirit that bodes well!

RETENTION

A Discussion of Permanency of Results in Orthodontic Practice

Bercu Fischer, D.D.S., New York, N. Y.

IN DISCUSSING the permanency of final results following orthodontic treatment, I am not unmindful of the controversies associated with this problem in our orthodontic literature. Despite the differences of opinion, however, there is expressed by all a sense of doubt as to the ability to foretell which case will end in a permanent success and which will relapse.

Calvin Case in his *Dental Orthopedia* expresses this doubt in the following quotation:

"It is possible, even probable, that the art of retention will never approach so nearly to an exact science as that of regulating, because of certain natural influences over which one can have little or no control."

Harold Chapman of London, who is an advocate of extraction as part of treatment, says:

"The value of a method of treatment is judged by the percentage of cases treated successfully; the criterion of success is not the placing of the teeth in so-called normal occlusion, but their retention in those positions without artificial aid."

These are only a few quotations from the literature expressing the uncertainty. A similar view is taken by Oppenheim when he speaks of repair following orthodontic treatment:

"As we do not know anything about the amount required and the time necessary for the reparative processes which are quite different in different individuals, *we can in no case* of finished treatment say whether there will be a permanent success or whether a relapse is to be expected."

As there are no statistics available, the fact remains that after years of orthodontic endeavor we are in no position to know what percentage of the treated cases are successful since most patients wear retaining appliances.

Oppenheim's findings that the final adjustment of the tissues following orthodontic treatment does not take place until long after all retaining appliances have been removed threw some new light upon the question of retention. From his conclusions one might draw the inference that mechanical retaining appliances are an interfering factor in the final adjustment of the tissues, or may I dare say *static tissue disturbers*, especially if these appliances are of the rigid variety. In this connection, the relapse following years of mechanical retention of successfully treated cases is a point to be considered.

Prompted by Oppenheim's conclusions, I decided a few years ago, at the risk of retreating, not to retain mechanically some of my cases. Many of them show no tendency to relapse.

Read before The New York Society of Orthodontists, Feb. 24, 1942.

In taking stock of my cases, I have grouped both those with mechanical retention and those without mechanical retention according to the permanency of results, into two categories:

1. *Stable.*
2. *Unstable.*

Among the *stable* cases the majority were of Class II, Division 1 (Angle) where there was no crowding of the teeth, but just a Class II relationship of the dentures. Two cases of Class II, Division 1 and subdivision with regular individual arches that have had *no* mechanical retention and were *stable* are shown in Fig. 1.

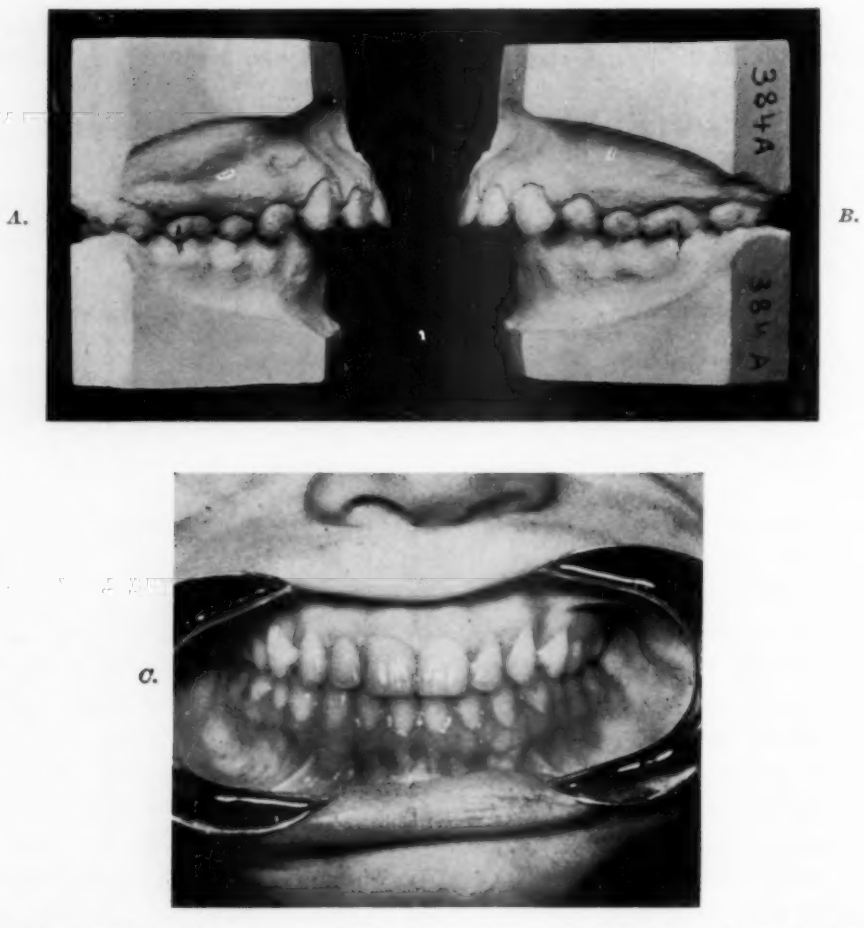


Fig. 1.—Case 1. *Stable; no mechanical retention.* Aged 13 years; Class II, Division 1. *A*, Right side at the beginning of treatment; *B*, left side at the beginning of treatment; *C*, dental photograph two and one-half years after all appliances were removed.

The next group of *stable* cases were those characterized by lingually placed maxillary teeth. The treatment of this group is not without its limitations.

Among the *unstable* were cases of all classes: Class I, Class II, Division 1, Class II, Division 2, their subdivisions, and Class III.

It is important to note that the *unstable cases did not select any particular molar relationship. The majority of them had bunched upper and lower teeth due to a forward position of the incisors, a mesial drift of the lateral segments, or both.*

A case of Class II, Division 1 (Angle) complicated by bunched anterior teeth and mesial drift of lateral segments is shown in Fig. 2. It is still under retention and is *unstable.*

The Class II, Division 1 cases illustrated in Figs. 1 and 2 were treated in the permanent dentition, that being generally the accepted practice. As the results were not consistently stable, I decided to treat some of these cases earlier, that is in the mixed dentition, and see what influence early treatment might have on stability. While I am in no position to state that early treatment favors stability, it at least does not hamper it. Of those cases that I have treated in the mixed dentition, some are *stable* and some are *unstable.*



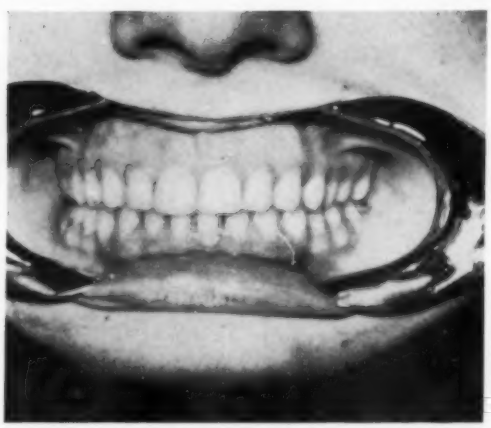
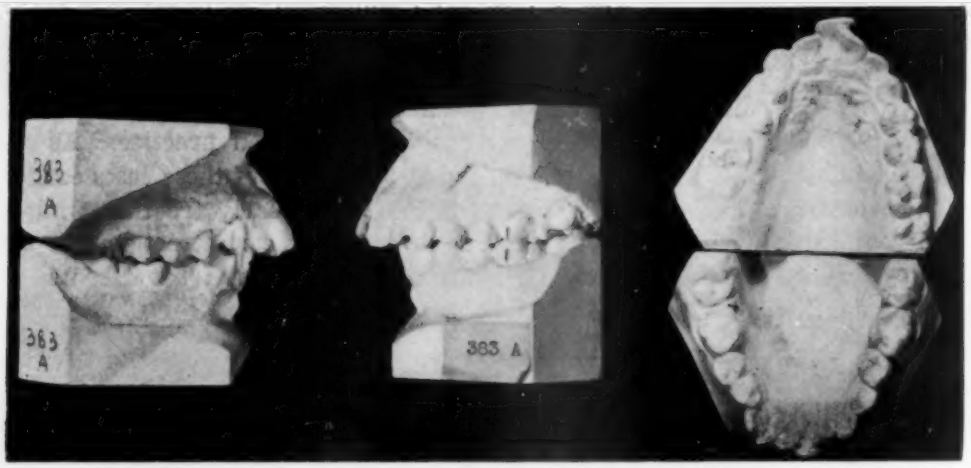


Fig. 1.—Case 2. *Stable; no mechanical retention.* Aged 12 years; Class II, Division 1, subdivision. *D,* Right side at the beginning of treatment; *E,* left side at the beginning of treatment; *F,* dental photograph two and one-half years after all appliances were removed.

Fig. 3 shows a Class II, Division 1 case treated in the mixed dentition and is *stable.* However, the improved facial balance which results from early treatment even in those cases showing dental relapse and requiring a second period of treatment would indicate that early treatment is desirable.

The case illustrated in Fig. 4 was treated in the mixed dentition and relapsed. However, the marked improvement in the facial balance can be seen in photograph *F* of the same figure.



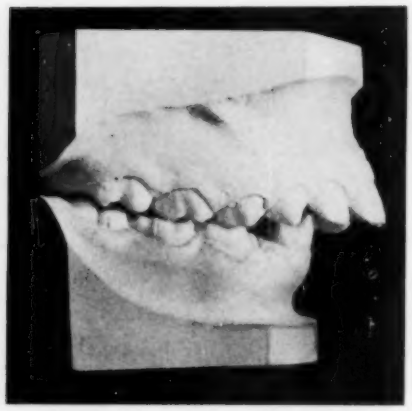
A. *B.* *C.*

Fig. 2.—Case 3. *Unstable; under mechanical retention.* Aged 12 years; Class II, Division 1, subdivision; bunched maxillary and mandibular incisors and mesial drift of right upper segment. *A*, Right side at the beginning of treatment; Class II molar relationship. *B*, Left side at the beginning of treatment; *C*, occlusal view at the beginning of treatment.



Fig. 2.—*D*, Dental photograph one year after the end of treatment.

A.





B.

Fig. 3.—Case 4. *Stable; no mechanical retention.* Aged 9 years; Class II, Division 1; treated in the mixed dentition. *A*, Right side at the beginning of treatment; *B*, left side at the beginning of treatment.

The case illustrated in Fig. 5 is representative of a group which I find very difficult to manage and which results in bimaxillary protrusions with *unstable* dentures and final collapse unless retained in this unfavorable position indefinitely. I am now retreating this case by extracting four premolars.

It is interesting to read what Tweed says about these cases:

"Some of these so-called simple Class I cases I have found difficult to retain after treatment. The individual teeth are too far forward in relation to their respective jaw bones, and the denture is therefore mechanically unsound and cannot withstand the forces exerted upon it incidental to function. The frequency with which it collapses, particularly in the lower incisal region, is, to say the least, alarming."

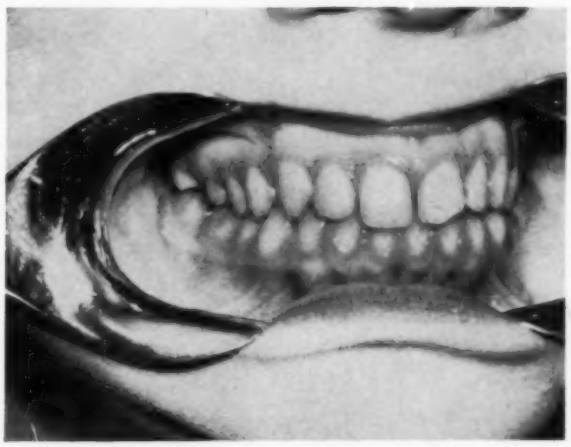
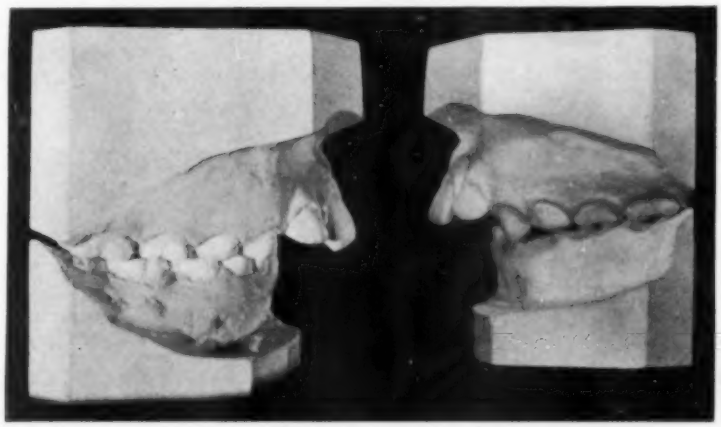


Fig. 3.—*C*, Dental photograph two and one-half years after all appliances were removed.



A. *B.*

Fig. 4.—Case 5. ***Unstable; relapse.*** Aged 8 years; Class II, Division 1; treated in the mixed dentition. *A*, Right side at the beginning of treatment; *B*, left side at the beginning of treatment.

The fact that there is a Class I molar relationship in the case illustrated in Fig. 5 does not mean that all bimaxillary protrusions have a Class I molar relationship. On the contrary, a large number of cases that are prone to develop into bimaxillary protrusions with their instability have a Class II molar relationship. The facial balance in these cases is very often good. Where the facial balance is not good, it is usually due to a lack of vertical height. In

those cases with good facial balance, the danger of disturbing this balance must be borne in mind in the treatment of the dental condition.

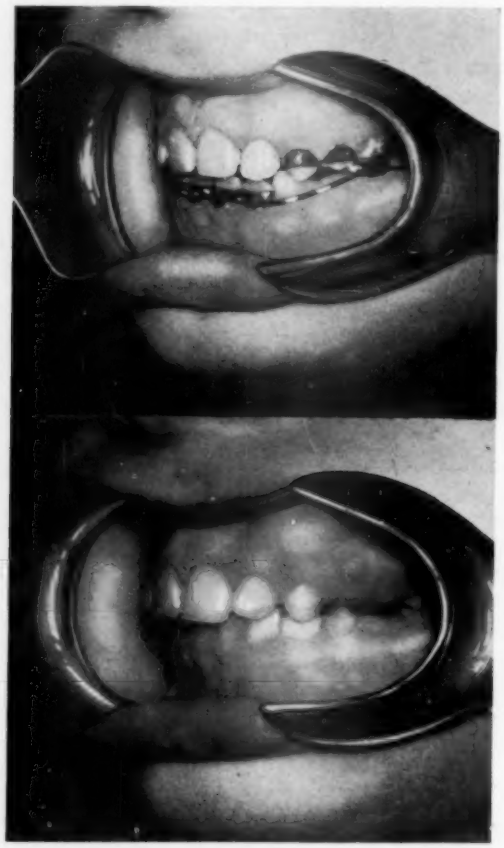


Fig. 4.—*C*, Dental photograph at the end of treatment with the appliances on. At this time all appliances were removed and no retaining appliances used; *D*, dental photograph taken five months later showing relapse.

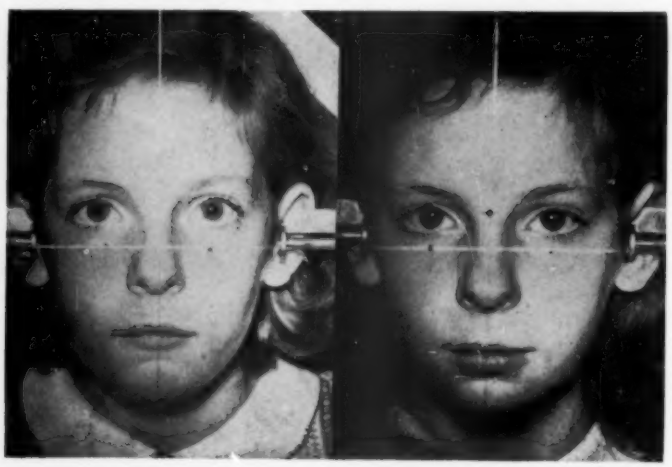


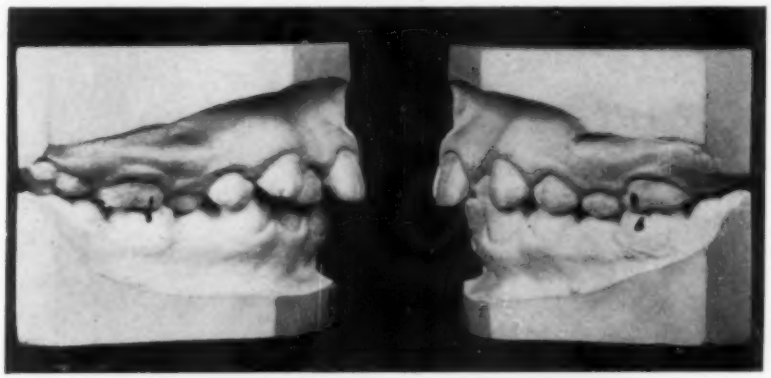
Fig. 4.—*E*, Facial photograph taken at the beginning of treatment; *F*, facial photograph taken five months after all appliances were removed. Note the improved facial balance despite dental relapse.

The case illustrated in Fig. 6 is of this class.

I am now treating a number of these cases in the mixed dentition with the hope of increasing the number of stable cases in this group. The objectives in treatment are:

1. The placing and the maintaining of the incisors on the ridge.
2. The correction of the Class II molar relationship.
3. The reduction of the incisal overbite.

Fig. 7 shows the procedure followed.



A. *B.*



C.

Fig. 5.—Case 6. *Unstable; relapse.* Aged 12 years; Class I molar relationship. *A*, Right side at the beginning of treatment; *B*, left side at the beginning of treatment; *C*, occlusal view at the beginning of treatment.

Collapse after treatment may take place in any of the objectives achieved, that is:

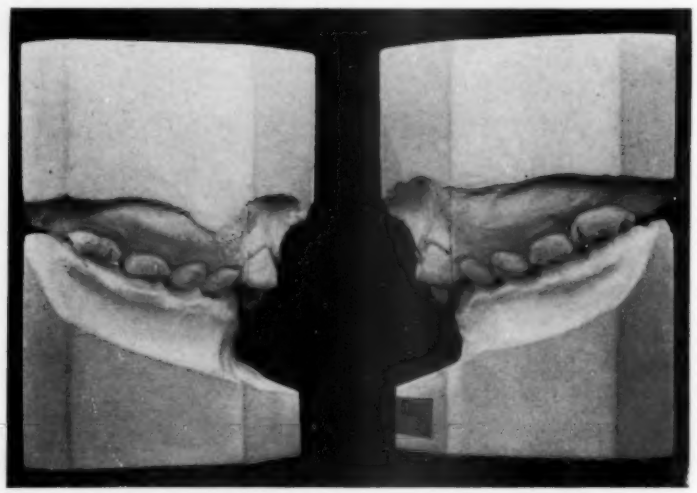
1. Collapse in the incisal region.
2. Collapse in the mesiodistal relationship.
3. Collapse in the vertical height.



D.

E.

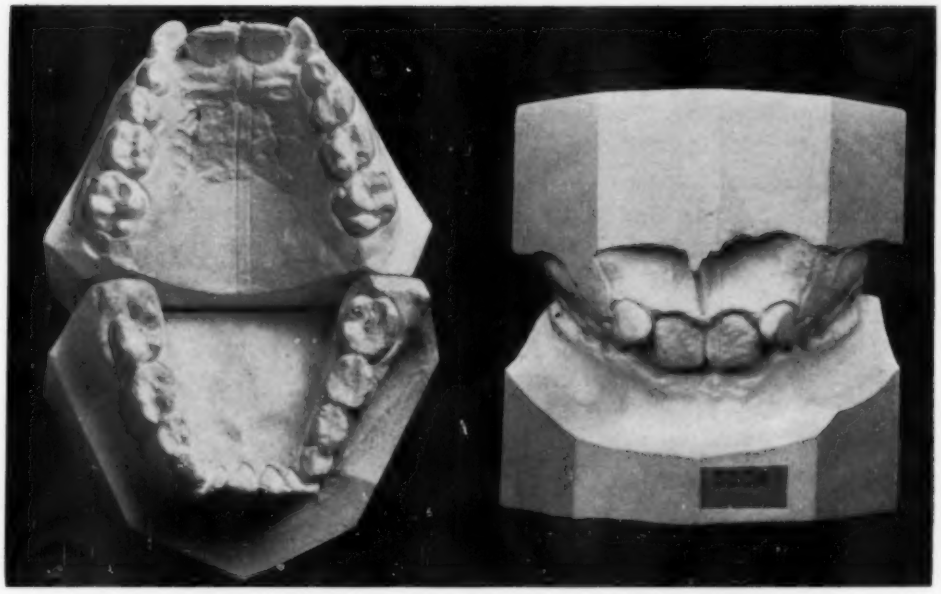
Fig. 5.—*D*, Right dental photograph four years after completion of treatment showing relapse; *E*, left dental showing relapse. That both upper and lower dentures were in mesial forward position is evident, despite a Class I molar relationship. This case is now being retreated by extracting four premolars.



A. *B.*

Fig. 6.—Case 7. Aged 9 years; usually classified as a Class II, Division 2 case. The main points to be noted are: 1, Class II molar relationship. 2, Bunched maxillary and mandibular incisors. 3, Deep overbite. 4, Good facial balance. *A*, Right side at the beginning of treatment; *B*, left side at the beginning of treatment.

C.



D.

Fig. 6.—*C*, Occlusal view at the beginning of treatment. Note protruding lateral incisors which are symptomatic of these cases indicating a mesial drift of the lateral segments. There is also crowding of the mandibular incisors. *D*, Front view at the beginning of treatment showing the deep overbite.

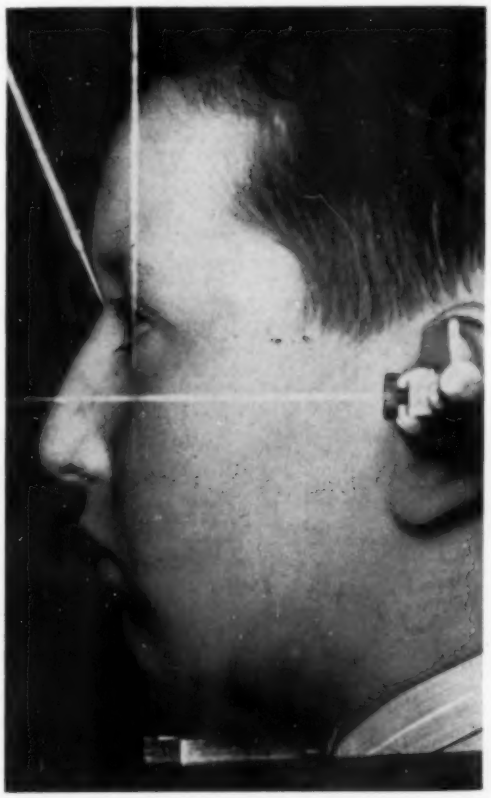


Fig. 6.—*E*, Profile photograph at the beginning of treatment. Note good facial balance and how easily this balance could be disturbed if the incisors were not kept on the basal bone during treatment. In the treatment of these cases, if we are to hope for a stable denture and to retain the good facial balance, room for the crowded incisors should be gained by moving the teeth distally into a wider arc. This case was treated in the mixed dentition. The treatment is described step by step in Fig. 7.

No conclusions can be drawn at this time as to the stability of the denture following this treatment, but maintaining the teeth on the basal bones should make for *stability in the incisal region.* (See legend under Fig. 7.)

Regarding the *corrected Class II molar relationship,* it is encouraging to observe that it is the most stable of all the objectives achieved. The literature is abundant in case reports of Class II, Division 1 cases successfully treated. Lunstrom alone reports that out of 120 cases treated in this class, 100 were stable. This stability of the corrected molar relationship is not confined to Division 1. In this connection, let me read the following from a paper published in the *Angle Orthodontist* of April, 1935, entitled: "A Clinical Study of Malocclusion in Class II, Division II." This is a summary of answers to ques-

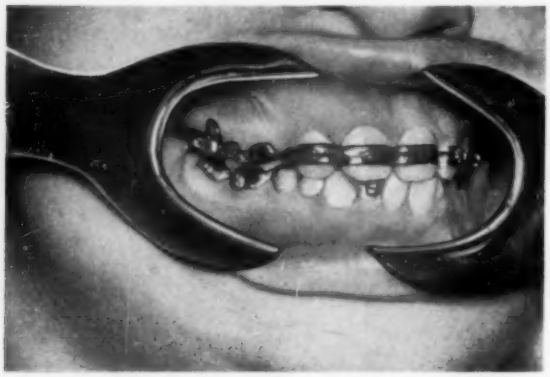
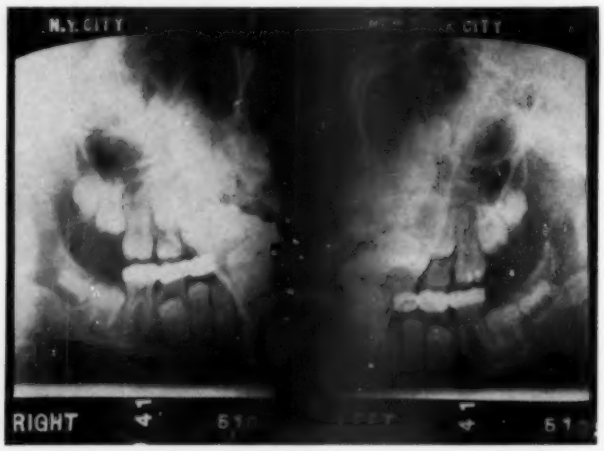


Fig. 7.—Steps in treatment of the case illustrated in Fig. 6. Treated in the mixed dentition. The objectives were: 1, The placing of the incisors on the ridge. 2, The correction of the Class II molar relationship. 3, The reduction of the incisal overbite. The placing of the incisors on the ridge was accomplished by moving the laterals into the space provided through the extraction of the right and left maxillary temporary canines. The molar relationship was corrected by moving the maxillary first permanent molar distally on either side, by means of the Strang vertical loop spring. The positioning of the maxillary lateral incisors and the distal movement of the molars was accomplished in the four months' period of treatment.

A, Dental photograph taken after four months of treatment showing lateral incisors in corrected position and molar relationship corrected. Note also the correction of the deep overbite which followed the moving of the molars distally.* No bite plate was used.

B.



C.

Fig. 7.—Lateral plates taken on the same date showed the permanent molars in good position; *B*, right; *C*, left.

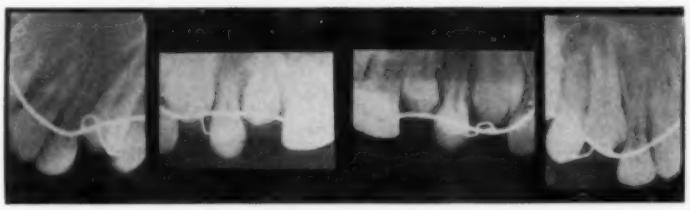
*The fact that I succeeded in moving the maxillary first molars distally without the use of the lower as anchorage is not to be taken that I advocate using such a minimum of anchorage. It was attempted in this case, only to prove that the maxillary molars could be moved distally without moving the mandibular molars mesially in the process of correcting the Class II molar relationship. The usual procedure in these cases would be to use the maximum of anchorage both intraorally and extraorally.

tions sent out to the members of the Eastern Component of the Edward H. Angle Society of Orthodontia.



Fig. 7.—*D*, Plaster cast of the upper arch at this time compared to the original. Note the eruption of the first premolars and the ample space provided for the other teeth. Measurements taken at this time in the mouth showed that the distance from the distal of the lateral incisor in the new position and the mesial of the first molar in the new position was 22½ mm., which was equal to the distance taken on the models at the beginning of treatment. Thus, the original space for the unerupted teeth has been maintained.

E.



F.

Fig. 7.—Radiograms of the maxillary teeth taken two months later showed the eruption of the permanent successors; *E*, right side; *F*, left side. Note the position of the lateral root in relation to the canines.



Fig. 7.—*G*, Dental photograph taken after ten months of treatment. The upper appliance has been removed and a lingual molar-to-molar retainer inserted. Treatment is being continued in the lower arch after the removal of the mandibular temporary canines.*

Question No. 6 of this report reads:

"From your results in the treatment of Class II, Division II cases of malocclusion, what would your prognosis be for these cases?"

"A summary of these answers would indicate a favorable prognosis in maintaining the mesiodistal relationship of the two arches but difficulty in holding the corrected overbite. Almost all seemed to realize a need for prolonged retention of this vertical growth."

*Dr. Charles H. Tweed in discussing this paper at a meeting of his study group held in Tucson, March, 1942, gave credit to Dr. Hays Nance for being the first to extract mandibular deciduous canines to permit the positioning of the mandibular incisors on the ridge. Dr. Nance advocated this procedure as a preliminary step in the Tweed method of mandibular anchorage preparation for the treatment of mixed dentition.

The men who answered the questionnaire used a bite plate to correct the lack of vertical growth in the molar and premolar regions of the dentures.

The reasons for the *instability of corrected vertical height* are not very well known, although there are many theories explaining it. From a clinical point of view, the correction of the overbite is possible, but its instability is a problem. Time will show whether the vertical height corrected in the mixed dentition will be more stable.

There is a clinical basis for the assumption that the position of the first permanent molar is a determining factor in the incisal overbite. If the mandibular first permanent molar occupies a mesial position to normal, that is a lower level of the basal bone, it causes a lack of vertical height. Clinically this is demonstrated by the reduction of the incisal overbite, when, during treatment, the molars are moved distally into a higher level of the basal bone. Quite often, in these closed-bite cases, the upper and the lower dentures are too far forward on the basal bone. This allows the first permanent molars, both maxillary and mandibular, to erupt mesially to their normal level. Because of this, my procedure in treating the deep overbite in the mixed dentition is to move the mandibular first permanent molar distally, in order to increase the vertical height. When this is accomplished, the maxillary first permanent molar is moved distally to obtain a normal molar relationship. If these teeth are prevented from moving mesially until the permanent teeth have erupted, there seems to be a good reason to expect the corrected overbite to remain stable.

But more of this at a future date, when I hope to have the opportunity to report these cases either as *stable* or *unstable*.

SUMMARY

The attitude adopted in this paper to the problem of retention was that of stock-taking. Not with the object of offering a solution, but of reviewing the problem itself and suggesting some procedures which may reduce the number of failures in practice. From the ideas expressed in this presentation, the following salient points may be stressed.

CONCLUSIONS

I. Orthodontic treatment is not biologic and will disturb the tissues involved. The time it takes for these tissues to readjust themselves varies with every individual and is influenced by the length of orthodontic treatment. As the final readjustment of the tissues takes place long after the retaining appliances have been removed, mechanical retention should be considered as part of active treatment and not as a period of readjustment.

II. The problem of stability after treatment is one that affects the entire orthodontic effort. Collapse may occur in any one of the following:

1. Tooth-jaw relationship.
2. Mesiodistal relationship.
3. Vertical height.

III. From a clinical point of view the immediate attempt toward the reduction of relapses points to the following suggestions:

1. Stock-taking of our own cases and grouping them into *stable* and *unstable* will help the compilation of statistics that will give us a definite idea of our limitations.

2. Stability of the denture should be one of the aims in treatment and properly planned for, when treatment is undertaken, and not when it is completed. It is difficult to reconcile the classification and diagnosis of cases on the basis of the molar relationship alone, with the fact that instability after treatment has no regard for any particular molar relationship.

3. In order to insure the stability of the *corrected tooth-jaw relationship,* Tweed's principle of placing the teeth on the ridge should be followed, especially in those cases which are complicated by bunched maxillary or mandibular teeth and a protrusive position of the incisors.

4. With some exceptions, the *corrected Class II molar relationship is stable.*

5. *Corrected vertical height* shows great instability when bite plates are used. New methods must be tried in the correction of vertical height and some consideration given to the part the first permanent molar may play in determining the incisal overbite.

6. Whenever possible cases should be treated early; that is in the mixed dentition. The improvement in facial balance gives emphasis to this point. Should a second period of treatment be necessary, it could still be taken care of in the formative period.

7. In those cases where a complete permanent dentition is present, it may be well to consider whether the optimum functional occlusion would not be a better objective than the ideal occlusion, if that will insure a stable denture.

REFERENCES

1. Brash, J. C.: The Aetiology of Irregularity and Malocclusion of the Teeth, Dental Board of the United Kingdom, 1930.
2. Brodie, Allan G.: Biologic Aspects of Orthodontia, Dental Science and Dental Art, Edited by Samuel M. Gordon, Philadelphia, 1938, Lea & Febiger.
3. Case, Calvin S.: Dental Orthopedia, Chicago, 1921, C. S. Case Co.
4. Chapman, Harold: Orthodontics. Extraction as a Part of Treatment, The Second International Orthodontic Congress, London, 1931, St. Louis, The C. V. Mosby Co., 1933, pp. 290-310.
5. Gottleib, B., and Orban, B.: Biology and Pathology of the Tooth and Its Supporting Mechanism, New York, 1938, The Macmillan Company.
6. Hellman, Milo: Some Biologic Aspects: Their Implications and Application in Orthodontic Practice, INT. J. ORTHODONTIA 23: 761, 1937.
7. Krogman, Wilton M.: Growth Theory and Orthodontic Practice, Angle Orthodontist 10: No. 4, 1940.
8. Lewis, S. J., and Lehman, I. A.: A Quantitative Study of the Relation Between Certain Factors in the Development of the Dental Arch and the Occlusion of the Teeth, The Second International Orthodontic Congress, London, 1931, St. Louis, The C. V. Mosby Co., 1933, pp. 290-310.
9. Lundstrom, Axel J.: Malocclusion of the Teeth Regarded as a Problem in Connection With the Apical Base, Stockholm, 1923, A. B. Fahlerantz.
10. Noyes, F. B., and Shour, I.: Dental Histology and Embryology, Philadelphia, 1938, Lea & Febiger.
11. Oppenheim, A.: Die Krise in dir Orthodontic, Vienna, Urban and Schwarzenberg, 1933 (translation in INT. J. ORTHODONTIA).
12. Idem: Biologisch-Orthodontische Therapie und Wirlicheit, Vienna, Urban and Schwarzenberg, 1936 (translation in Angle Orthodontist 4: Nos. 3, 4, 1935; 6: Nos. 1, 2, 3, 1936).
13. Strang, R. H. W.: Text-Book of Orthodontia, Philadelphia, 1933, Lea & Febiger.
14. Tweed, Charles H.: The Application of the Principles of the Edgewise Arch in the Treatment of Malocclusions, Angle Orthodontist 11: No. 1, 1941.
15. A Clinical Study of Malocclusion in Class II, Division II, Angle Orthodontist 5: No. 4, 1935.

2 EAST 54TH STREET

APPLIED ORTHODONTICS IN OROFACIAL PROSTHESIS

JACOB C. LIFTON, D.D.S., NEW YORK, N. Y.

OROFACIAL prosthesis is concerned with restoring mechanically an anatomic section missing from the maxilla, mandible, or face.

The missing part may be congenital; it may follow trauma as in airplane accidents, gunshot wounds, etc.; it may be the sequel to disease; or it may be the deliberate result of surgery following a radical resection to remove a neoplasm and perhaps thus save a human life.

When the anomaly is associated with the mandible, the loss of interstitial bone destroys the continuity of that bone dividing it into a loose segment or segments.

Normally, to achieve the various mandibular movements, all the elevator and depressor muscles act in pairs, in combination, and in coordination. But with the elimination of points of muscular attachment caused by the loss of bone, the severed muscles join with the contiguous muscle fibers. Therefore, instead of the mandible responding naturally as an integral unit, the remaining segment or segments, as the case may be, respond directly to the unilaterally attached muscles and are influenced indirectly by their detached component musculature and by the contracture of the cicatricial tissue. As a consequence, the action of the muscles is thrown out of balance and the direction of movement perverted. Thus a malrelation of the mandibular segment or segments to the maxilla is induced with resultant malocclusion and nonfunction of the remaining teeth.

Accordingly, the wider the extent of the defect or the more pivotal the situation of the defect, the greater will be the facial deformity and the gravity of the displacement or malfunction of the segmented mandible.

In presenting the following cases of orofacial prosthesis, it is the writer's desire to lay particular emphasis on the utilization of basic orthodontic principles in the mass movement and retention of mandibular segments during postsurgical care in contradistinction to the individual movement of teeth as practiced generally in orthodontics.*

CASE 1.—M. S., male, aged 28 years, had the body and ramus of the mandible removed extending from the mandibular right central incisal region to the right condyle. Externally there was a collapse of the right cheek.

The patient gave a history of having sustained a blow on the lower right jaw at the age of 15 years and again at 22 years when he suffered an injury from a fall down an elevator shaft. The swelling in his mouth was neglected. When he finally sought treatment, the condition was diagnosed as adamantinoma and necessitated a radical resection.

Attending Orthodontist at the Hospital for Special Surgery, New York; Associate Visiting Dentist at Bellevue Hospital, New York; Consulting Orthodontist at Kings Park State Hospital, Kings Park, New York.

*The postsurgical care of maxillary anomalies was discussed in my article, "Orthodontics in the Treatment of Cleft Palate," which appeared in the August, 1941, issue of the *American Journal of Orthodontics and Oral Surgery.*

An examination of his mouth revealed the remaining left mandibular segment grossly deflected to the right and containing all the left mandibular teeth and the right mandibular central incisor which occluded with the maxillary right first premolar. The mandibular left second molar was in slight contact with the maxillary second molar, while the remaining maxillary teeth either did not articulate or had no antagonists (Fig. 1*D*).

Lateral and posteroanterior roentgenograms revealed the complete absence of the right ramus and body of the mandible, extending forward to the region of the right lateral incisors with the including teeth obviously missing. On the maxilla the right first molar was missing (Figs. 1*A*, *B*, and *C*).

The teeth of the left mandibular segment could not be moved voluntarily by the patient into occlusal contact with their maxillary opponents (Fig. 1*D*).

The despair of the patient was most disheartening. For the sake of his mental health, every effort had to be made to bolster his spirits. It was necessary, therefore, to assure him of our ultimate success and to obtain his promise of complete cooperation.

The fundamental problem was to restore and to retain contact and function between the remaining mandibular teeth and their maxillary antagonists and at the same time to prevent the elongation of the right maxillary teeth possibly by supplying artificially the missing opposing mandibular teeth. Indeed all other considerations depended upon a balanced occlusion.

To accomplish that goal, it was of utmost importance that retention of the appliance be absolutely stable, otherwise key teeth would be displaced, probably in an undesirable direction, and complicate an already difficult problem. Therefore, the primary consideration was anchorage. To achieve that we used Jackson crib and other indicated clasps utilizing the vulcanite base and splint-like saddle arrangement as auxiliary anchorage.

The maxillary appliance was planned to hold a stationary open tube which would substitute for the right glenoid fossa. It had to be retained firmly in place and exert during function only a minimum strain on the maxillary teeth. For the remaining mandibular segment, an appliance was planned to envelop the entire remaining segment (Fig. 1*G*). It furnished the bulk of the lost interstitial bone and served as a support for the connecting attachment to the lower part of this pseudo-temporomandibular joint. An intermaxillary sliding device was designed to serve as a substitute for the lost ramus and condyle function and to direct the remaining mandible into its proper relationship to the maxilla.

Accordingly, the maxillary appliance consisted of clasps on the left first premolar, left second molar and right first premolar. To the right first premolar clasp a stress-breaking spring was attached. In the buccal first molar region was an almost completely open oval tube, the direction and length of which had been determined previously to harmonize with the left condylar path consistent for that region of the mouth. All these clasps and the open buccal tube were soldered to the skeleton palatal body wire. This framework was embedded in a horseshoe-shaped vulcanite base which encircled the right tuberosity and continued forward and anteriorly to the molar space. There it joined the palatal vulcanite where an artificial tooth was added in place of the missing right molar.

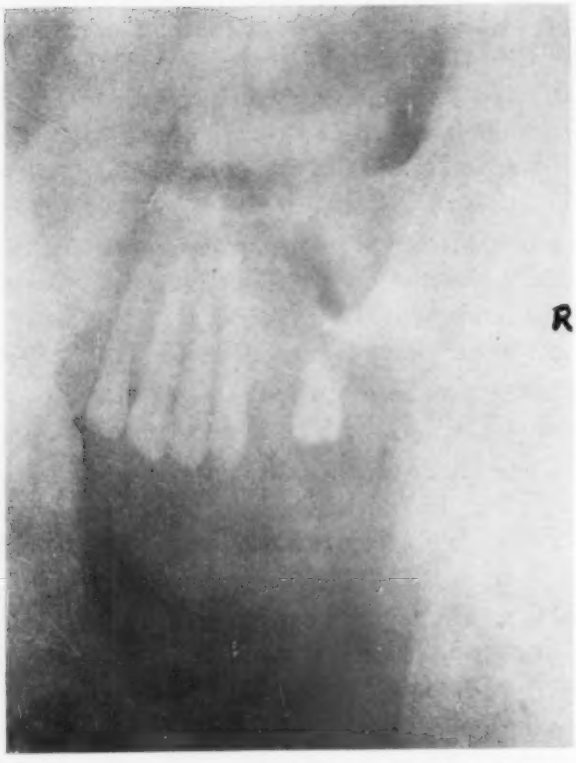


Fig. 1*A*.—Right lateral view roentgenogram indicating complete absence of right ramus and body of mandible.



Fig. 1*B*.—Posteroanterior view roentgenogram showing destruction in relation to adjoining structures.

On the mandible, a Jackson crib clasp for the left first molar and clasp for the left canine and right central incisor were made. In the right premolar region was a 14-gauge all round gold and platinum wire for the reception of the tube of the sliding device, the location of which also was previously determined. It corresponded with the direction of the maxillary open tube so as to harmonize

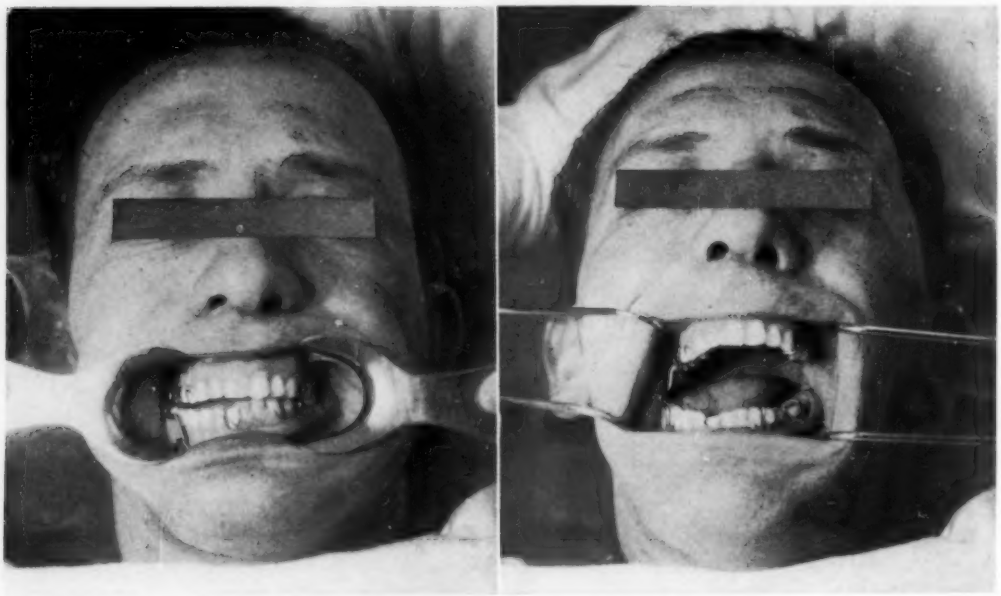


Fig. 1*C*.—Left lateral view roentgenogram.



Fig. 1*D*.—Moulage of patient showing teeth in centric occlusion at outset; only mandibular left molar and right central incisor in contact with maxillary teeth.

with the left condylar movements. It actually was a transfer of the center of measurement and tracings from the left side to the right side. Distal to that wire, a 21-gauge gold and platinum wire ended in a hook to hold a small orthodontic elastic. These clasps and wires were soldered to a wire skeleton framework which extended on the right side beyond the muscle bundle formed after the resection of the body and ramus of the mandible, as far back as the patient would tolerate, and on the left side across the labial and buccal middle alveolar



E. *F.*

Fig. 1.—*E*, Front view of teeth in centric occlusion with appliance in position and sliding rod inserted and in position. *F*, Front view with mouth open, appliances including sliding device inserted and in position.



Fig. 1*G*.—Photograph of mandibular appliance showing encircling vulcanite covering middle alveolar third, also showing sliding rod attached.

third to the distal of the left second molar, and then lingually to join the skeleton framework. All these wires were embedded in pink vulcanite except the ends of the 14-gauge wire and intermaxillary hook which were exposed for later use. Sufficient bulk was used to make up in some degree for the lost bone. Artificial teeth were articulated to occlude with the right maxillary teeth (Fig. 1*G*).

To join the upper and lower appliances a 14-gauge gold and platinum wire was balled in the flame and then tooled to fit the open maxillary tube. To allow for extension or reduction in the length of this rod, the middle part of the wire was looped. At the other end was soldered a round tube which fitted over the horizontal mandibular 14-gauge wire. A groove was cut into the lower border of the tube penetrating the extending wire. To engage the slot formed, a 21-gauge wire was soldered to the sliding rod and shaped to act as a locking spring which terminated in a hook. Thus when the tube of the sliding device was inserted into position, the locking device snapped into place. Its locking properties were accentuated by connecting a small orthodontic elastic between the hook of the locking spring and the distal hook. At the same time, it maintained the spring under constant tension (Figs. 1*G* and 2*F*).

When the maxillary and mandibular appliances were assembled and inserted in the patient's mouth and the sliding device set, the mandible moved to the left (Figs. 1*E* and 1*F*). Thus good masticatory function was obtained, external facial appearance improved, and the patient made confident and happy.

Case 2.—D. C., male, aged 45 years, had a right facial deformity following the loss of part of the body of the mandible and the contiguous right ramus.

He gave a rather vague history of pain and swelling terminating in unavoidable drastic surgery. He also complained bitterly of his inability to chew.

An examination showed the mandible deflected to the right with complete nonocclusion of the remaining left canine, premolar, and second molar teeth to his maxillary teeth. These teeth bit into the palatal tissue. The maxillary central incisors and left first molar were missing (Fig. 2*C*).

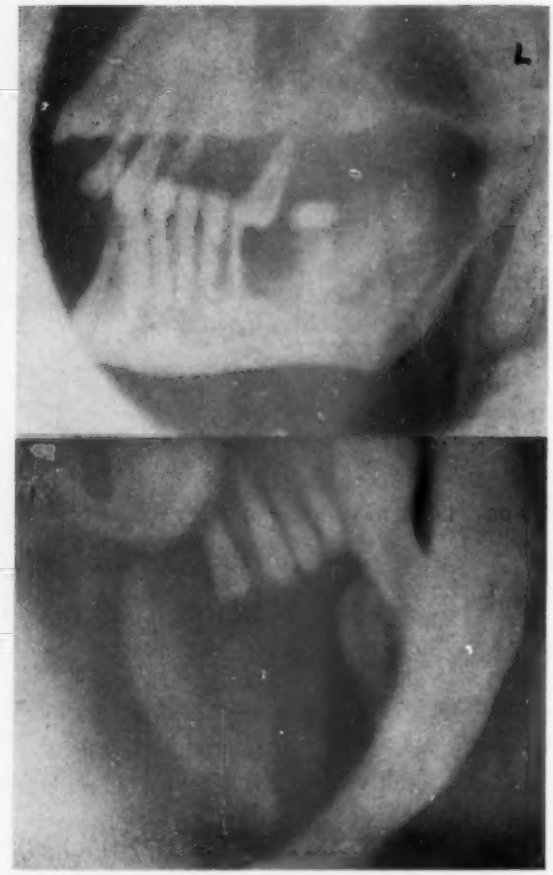
Lateral roentgenograms revealed the absence of the body and ramus of the mandible from the left incisal region to the right condyle (Figs. 2*A* and *B*).

The plan of the appliance design was similar to that in the previous case. On the maxillary appliance, however, teeth were added to replace the missing left molar and both central incisors. Corresponding buccal and labial flanges extended over the alveolar mucosa to increase the tissue bearing support (Fig. 2*F*).

The mandibular appliance was similar to the one previously described in Case 1 except that more teeth were needed to replace those missing (Fig. 2*F*).

For this patient it was necessary to medicate with sedatives every time an attempt was made to set the mandibular teeth into normal occlusion with the sliding device. While under its effects, he cooperated and the sliding device functioned well (Fig. 2*E*). However, when sedatives were not given, although the overbite was improved, his occlusion relapsed to some extent.

To overcome that, an intermaxillary elastic was used by passing it partly through the closed occlusal end of the maxillary condylar open tube forming an eyelet. Through this eyelet the rest of the elastic was threaded and knotted into position, then connected to the lower distal hooks in a Class II arrangement (Fig. 2*D*). This modification of gentle pressure brought the mandible into its proper relationship to the maxilla and eliminated the need for the sliding device. The patient no longer required sedation. His teeth now occluded and functioned well. His mastication progressively improved while his external appearance also benefited.



A.

B.

Fig. 2.—*A*, Left lateral roentgenogram showing missing teeth. *B*, Right lateral roentgenogram confirming absence of right ramus and part of body of mandible.



C. *D.* *E.*

Fig. 2.—*C*, Front view of teeth. Note the mandibular segment in complete linguoversion and biting into the palatal tissue. *D*, Front view with teeth in centric occlusion, appliance in position and intermaxillary elastic connected instead of sliding device. *E*, Front view with mouth open showing sliding device in position. This was later replaced with intermaxillary elastics (See *D*).

CASE 3.—O. M., male, aged 51 years, presented himself at the hospital with the mandible missing. He complained of considerable pressure on the lateral regions of the maxilla and constant drooling through an opening in the floor of the mouth. He remarked that the maxillary lateral incisal spaces had been getting smaller since he had lost his jaw.

He gave a history of calculi in the sublingual gland which were removed at the age of 18 years. A small nodule, the size of a pea, recurred in the same area twelve years later. Nothing was done about it until the age of 49 years when the swelling suddenly became acute and had to be removed. A pathologic section taken at that time was reported as cancerous. He was referred for roentgen ray therapy. Exfoliation of most of his mandibular teeth followed with an osteomyelitis and sequestrum formation and the subsequent loss of the entire body and angle of the mandible (Fig. 3*A*).



Fig. 2*F*.—Photographs of maxillary and mandibular restorations with connecting rod in maxillary open slot. Note adjustable looped rod of sliding device, locking spring and hooks for elastic.

An examination confirmed the presence of a perforation in the floor of the mouth. He had many maxillary teeth missing and all mandibular teeth missing except a loose mandibular left third molar. The soft tissue in the mental region had contracted progressively into a knoblike mass (Figs. 3*G*, *H*, and *I*).

Roentgenograms revealed the loss of the entire body of the mandible anterior to the left third molar and extending to the right ramus including the right angle to approximately the region of the lingula (Figs. 3*B*, *C*, and *D*).

To relieve the pressure on the maxilla caused by the muscles attached to the rami fragments and to control the contraction in the mental region, for economic reasons, only a mandibular appliance could be considered. It had been observed that the remaining rami segments were deflected backward and inward while the mental region was drawn backward and downward. To take advantage of these forces, an appliance with flanges was planned which extended onto the lingual areas as high as possible overlying the internal surface of the rami.

With that purpose in mind the mandibular impression was taken of the remaining segments under pressure in as near an anatomic position as possible. The impression included the perforation and the floor of the mouth. The maxillary impression was taken in the regular manner.

Casts in artificial stone were made from these impressions and were oriented and inserted into a facial cast (plaster impression of the face and a dental index had been taken previously). Thus a composite plaster reproduction of the face, jaws, and teeth was obtained. It was readily available for study and guidance in carving the substitute mandible as to bulk, position, and contour in relation to the face and head.



Fig. 3A.—Photograph of sequestrated mandible.

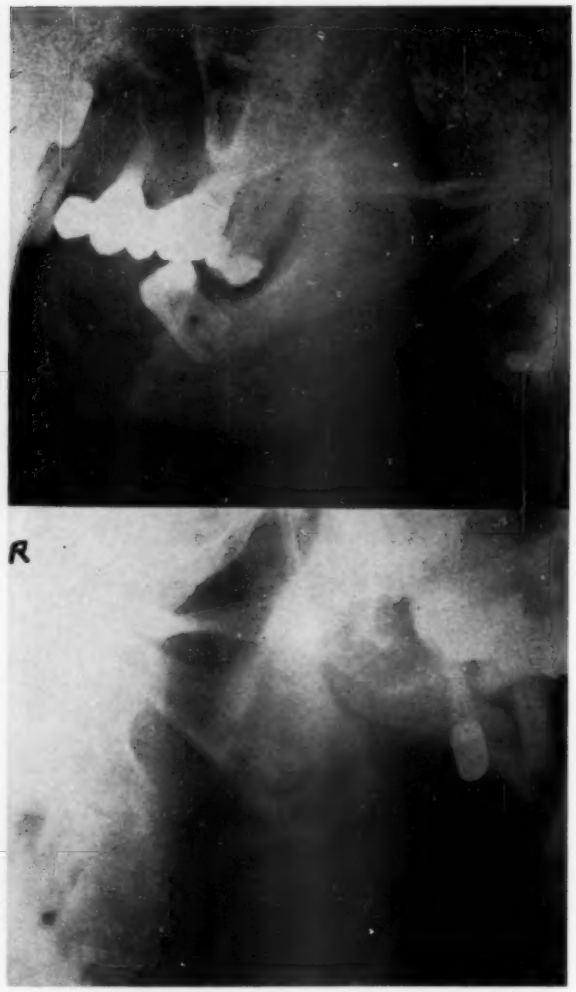


Fig. 3.—*B*, Left lateral roentgenogram revealing extent of left mandibular segment. *C*, Right lateral roentgenogram showing part of ramus missing.

With the pattern determined, it was a simple matter to construct the mandibular appliance in vulcanite. A vulcanite flange to engage the left ramus

segment extended lingually and well over the left retromolar area encircling the loose third molar. The vulcanite continued over to the right with a projection sealing the perforation in the floor of the mouth and another flange extending distally and lingually on to the remaining right ramus segment (Fig. 3*E*). The labial surface of the appliance was contoured to support the lip which transmitted its muscular pressure (Fig. 3*F*). No clasps were used for retention, but the playing of all these forces on the lower restoration acted as a supporting



Fig. 3.—*D*, Posteroanterior roentgenogram showing relative extent of mandibular destruction.

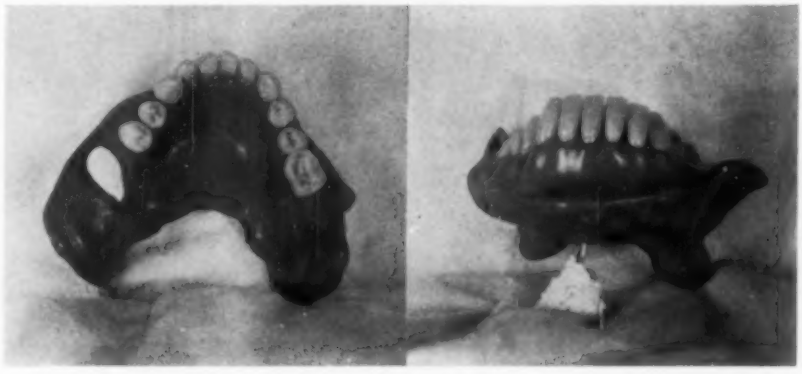


Fig. 3.—*E*, Photograph of orofacial prosthesis. Note encircling left saddle and lingual projection to seal perforation. *F*, Photograph of appliance showing labial contouring for reception of lip.

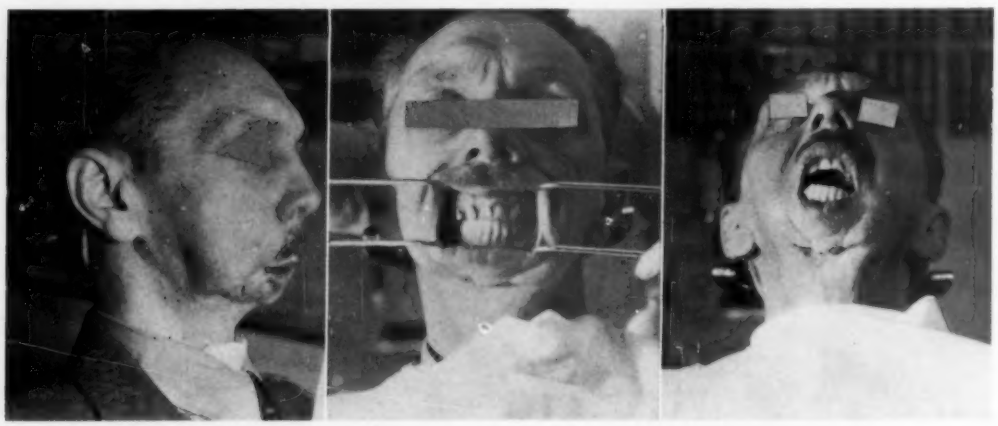
cradle and maintained it during mastication. The prosthesis was constructed in bulk in pink rubber with spun glass carefully incorporated into its center to reduce its weight. Teeth were added and occluded with the maxillary teeth (Figs. 3*E* and *F*).

The mandibular appliance was inserted and the patient used it for fifteen months. The sensations he experienced with and without the appliance were as follows: "I worked about the house, read, listened to the radio, etc., and was not conscious of the abnormal condition of my face. I took the 'jaw' out and immediately felt the lower lip. A few seconds later I felt my cheeks numb, a feeling similar to that following an injection before tooth extraction. This feeling extends from the cheek bone to the remains of the jaw bone. From there toward the lower lip the feeling is stronger and is like 'a leg asleep.' On the upper lip the feeling is similar to a prolonged squeezing pressure followed by



G. *H.* *I.*

Fig. 3.—*G*, Profile view with chin forming a knoblike mass. *H*, Front view with perforation directly anterior to tongue. *I*, Front view showing external opening of perforation in floor of mouth.



J. *K.* *L.*

Fig. 3.—*J*, Profile view with restoration in mouth. *K*, Front view with restoration in position. Teeth in occlusion. *L*, Front view with mouth open. Note how musculature maintains orofacial prosthesis.

a sudden release. The feeling in the lower lip is the same but becomes more intense. As a matter of fact, painful. It is most intense in the corner of the mouth, center of the lip and chin and that reminds me to put the 'jaw' back. With it back in the mouth, only a slight 'sleeping leg' sensation remains for a short time and then disappears."

Therefore, the completed appliance in position in the mouth furnished the needed relief from buccal pressure. It controlled appreciably the salivary drooling by sealing the perforation in the floor of the mouth. It also materially improved his chin and facial contour and aided his masticatory function and speech (Figs. 3*J*, *K*, and *L*).

SUMMARY

The orofacial prostheses planned and constructed for these unfortunate patients served to replace mechanically the parts lost through surgery or disease. In the cases cited the appliances were always of a removable type. They were constructed with large bases to cover extensive areas whenever and wherever possible. Key regions with teeth were enveloped in a splintlike manner for additional stability and strength.

The orthodontic principles applied involved:

1. A reduction of displaced and diverted segment or segments by mass movement.
2. The utilization of a tissue bearing base as:
   a. A stabilizing auxiliary anchorage to augment clasps, etc.
   b. A basis for the attachment and insertion of the sliding mechanism for aiding in the movement of the displaced segment into normal position.
   c. An attachment for hooks for intramaxillary elastic force for the maintenance of continued tension and for the retention of the segment in position.
3. The use of intermaxillary anchorage in opposite arches for reciprocal benefits.
4. The advantageous use of abnormal muscular pressures as a force for retention.

I wish to thank Joseph D. Eby, D.D.S., of New York for his suggestions and especially for his recommendation of the designation "orofacial prosthesis" in place of "surgical prosthesis" used heretofore. I am indebted to Leo Winter, M.D., D.D.S., chief of the Dental Department of Bellevue Hospital, for his cooperative spirit and for his recognition of the orthodontic possibilities and for the assignment of these unfortunate patients to the orthodontic clinic for follow-up care.

57 West Fifty-Seventh Street

END TUBE PINCHING PLIER FOR JOHNSON TWIN ARCH

ABRAHAM WOLFSON, D.D.S., NEWARK, N. J.

THE Johnson twin arch is an important contribution to orthodontic mechanics and has been of tremendous help in the vast majority of cases which I have been treating in the last two years. The laboratory techniques are in the main very simple and are amply described in Johnson's original article.

The only technical procedure which has caused considerable annoyance has been the problem of pulling the twin wires through the vise. It is time consuming, and, at least in my hands, never consistently reliable. Several months ago, it occurred to me that if the end tubes are regularly pinched for increased spring contraction, then the same principal of pinching could be applied over the soldered hook to secure the twin wires. The following technique is therefore offered.

Select any of the standard hardware pliers, either Kraeuter No. 1621—6 inch length, or the Crestoloy Plier No. 777—7 inches, or any other similar plier obtainable in hardware stores, providing the handles are either six or seven inches long.



Fig. 1.

Fig. 1 illustrates the original appearance of the plier. In Fig. 2 is shown the same plier ground down on an ordinary coarse grindstone, until the beaks are 1/8 of an inch. The ends may then be rounded and polished. Fig. 2 also illustrates the standard assembly consisting of a pair of wires (twin wires) and two end sections. The twin wires should be about four inches in length, and these can be prepared in large quantities, as described by Dr. Lourie Porter, by winding the wire upon a wooden spool approximately three inches in diameter, and then slitting the bundled wire at two points. A pair of wires

are slipped into one section and pinched securely. The other end section is slipped on and allowed to slide freely to any desired position.

When ready to seat an arch, this standard arch is taken to the mouth and the loose end section is slid across the wires to the desired position, and then immediately pinched securely as illustrated in Fig. 3.

This makes possible the stocking of a large quantity of arches, all of standard size, and yet all sufficiently flexible to meet any dimensions for the twin arch section.

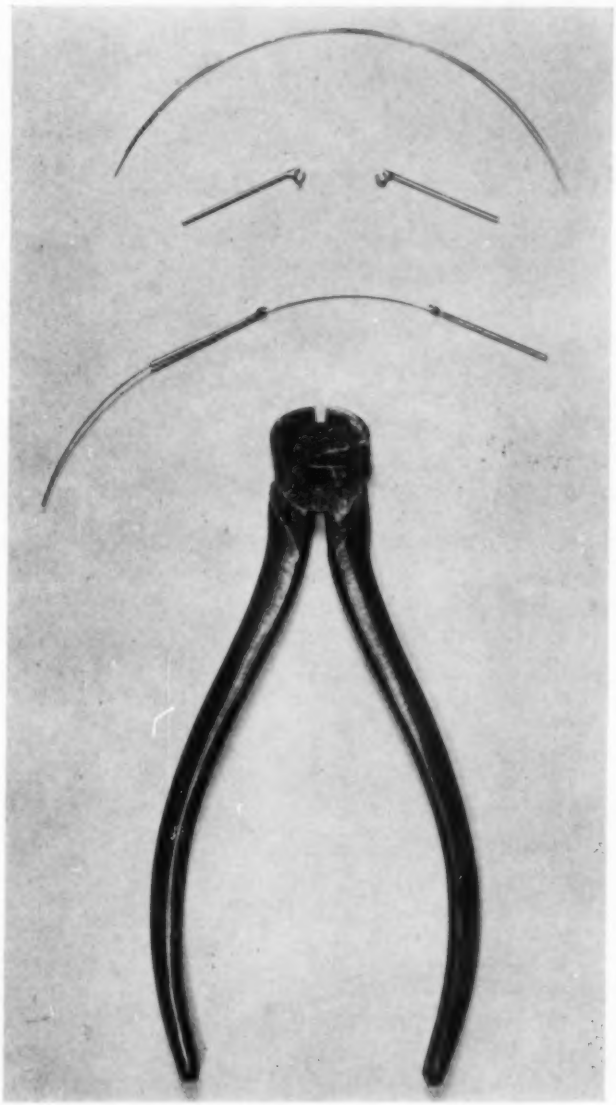


Fig. 2.

As orthodontists are notorious amateur inventors, it may be interesting to relate my experiences in the evolution of this plier. It first occurred to me to cut vertical and horizontal grooves in the short beaks in order to position the tube and hook carefully in relation to the twin wires. This necessitated elaborate machining and resulted in beaks that were too soft, and that did

not stand up, with no particular increased accuracy. At the suggestion of my secretary, Miss Edna E. Reemeerie, I tried the simple plier described above with ordinary flat beaks, and it has worked very satisfactorily.



Fig. 3.

HEREDITY AND GENETICS

WILBURT C. DAVISON, M.D., DURHAM, N. C.

THE belief that nothing practical is known about human heredity, except that red hair and hemophilia run in families, has been too prevalent among the public and unfortunately among the medical profession also. Not only is much known of medical genetics, but the knowledge is of practical value in the diagnosis and prognosis of disease and in the everyday practice of medicine. For example, in addition to the valuable advice which can be given to prospective parents with a poor heredity on the inadvisability of having children, mothers who have had one abnormal child should be told whether subsequent ones may also be malformed. Physicians who are interested in the genetic aspects of the family histories of their patients can be on the alert for the development of certain diseases and during the early, usually overlooked stages, can start treatment which may prevent disastrous consequences. A knowledge of heredity may also be applied in medicolegal cases. Furthermore, the careful compiling of family histories by physicians will help geneticists to clear up the mode of inheritance of some of the more obscure conditions.

The variance of human mental and physical traits, as well as the occurrence of diseases, is due partly to genetic variations and partly to the exigencies of the environment. The latter also may modify the expression of a hereditary factor. The constitution inherited from his parents often may be responsible for a child's being underdeveloped both physically and mentally. Although exceptions occur, tiny parents cannot be expected to produce giants, nor morons geniuses. However, nutritional and mental guidance may improve the population. The widespread knowledge of these latter factors probably is responsible for the fact that growth, especially during the first year of life, is greater in infants who have adequate medical supervision, and that the average student entering a university at present is two inches taller and seven pounds heavier than during the last generation. In addition to the structural and physiologic characteristics peculiar to members of certain families, a number of definite defects and malformations are hereditary.

Generally speaking, each hereditary characteristic of the individual is dependent on a pair of genes, one of which was received from each of his parents. If the pair of genes for a given characteristic are alike, he is said to be homozygous for this trait, and the gene which he hands on to each of his children will be the same (barring mutation, which is a sort of genetic accident changing the gene itself). If, however, one of the genes is not like the other, the individual is said to be heterozygous in respect to this trait. In this case there are two main possibilities: Either one trait will be dominant over the other,

From the Department of Pediatrics, Duke University School of Medicine and Duke Hospital. This summary is based on Medical Genetics by Dr. Laurence H. Snyder, 1941, Duke University Press.

Reprinted from the *Journal of Pediatrics* 21: 246, 1942.

masking its effect, or the two will blend. In the case of the homozygous individual, the genotype (the hereditary make-up, as given above) and the phenotype (the appearance) are to all intents and purposes the same. However, in the heterozygote the phenotype will give evidence of the dominant gene only, unless it is a case of blending, which is comparatively rare. Without the test-crossing which is used in plant and animal breeding, it is quite difficult to distinguish between the individual who is homozygous for the dominant gene and one who is heterozygous. In human pedigrees, data must usually be collected from several families showing the same trait, and then the frequency and distribution of its occurrence must be mathematically analyzed.*

According to mathematical probabilities, in the offspring of two heterozygous parents three will show evidence of the dominant gene, while only one (homozygous for the recessive gene) will show the recessive trait. Of the three who show the dominant trait, one will be homozygous and the other two will be heterozygous, carrying one dominant and one recessive gene each. Thus, if it is desired to rid the population of an undesirable dominant trait, it will be sufficient to persuade all individuals who show it to refrain from having children. This is a comparatively simple problem. The real difficulty comes when an undesirable trait is recessive. If a child shows such a trait, while his parents appear normal, this is an indication that the parents are both heterozygous, each carrying one recessive gene which does not show up in them because the dominant normal one is also present. In such a case these parents should be warned that further children may also show the trait. Further, in case the disability is unimportant it will be sufficient to warn the normal siblings of the affected child against marrying into families in which the anomaly is known to occur. In cases where the affliction is serious and frequent in the population, all the siblings should be warned against having children, since two out of three of the normal ones will be heterozygous, carrying the recessive gene and capable of reproducing the anomaly in the next generation if their mates happen also to be heterozygous.

Sex-linked heredity is a little different from the foregoing types. The chromosomes which carry the sex-determining genes carry also a number of other genes, those which determine the possibility of hemophilia and red-green color blindness among them. Most of these genes are carried on the X-chromosome. When there are two X-chromosomes present, the individual is female; when only one is present the individual is male. The Y-chromosome, which in the male forms a partial complement to the single X-chromosome, is inherited from the father and is much shorter than the X-chromosome, lacking many of the mates to the X-chromosome genes. Thus girls have complete pairs of genes of the sex-linked sets and may be either homozygous or heterozygous, while males have only one of each pair of genes and these they can pass on only to their daughters in the X-chromosomes. Their genotypes and phenotypes are identical since they are obviously homozygous.

In case of very undesirable sex-linked recessive traits, normal males in the family, since they have only the dominant normal gene, can marry with im-

*For further information on this and other points, see also Snyder, Laurence H.: The Principles of Heredity, ed. 2, New York, 1940, D. C. Heath & Co.

TABLE I

CONDITIONS DUE TO RECESSIVE TRAITS

Albinism	Ichthyosis fetalis (e)
Amaurotic family idiocy	Icterus gravis (f)
Amyotonia congenita	Infantile muscular atrophy
Blood group O	Keratoconus
Clubfoot	Megalocornea (a)
Color blindness (a)	Merzbacher-Pelizaeus disease
Congenital hydrops	Microcephaly
Cryptophthalmos	Microcornea (a) (d)
Day blindness (a)	Microphthalmos (a) (d)
Deaf-mutism (c)	Morquio's disease
Diffuse cerebral sclerosis	Niemann-Pick disease
Ectodermal dysplasia (a) (d)	Oguchi's disease (a) (d)
Enuresis	Ochronosis with alkaptonuria
Erythroblastosis	Phenylketonuria
Exophthalmic goiter	Porphyria
Gaucher's disease	Progressive lenticular degeneration
Hemophilia (a)	Progressive muscular dystrophy (a)
Hand-Schüller-Christian's disease	Retinal detachment (a) (d)
Hereditary spastic paraplegia (d)	Retinitis pigmentosa (a) (d)
Hurler's syndrome	Schilder's disease
Hydrophthalmos	Spina bifida
Hypertrophic neuritis	Tay-Sachs disease
Ichthyosis congenita (e)	von Gierke's disease

(a) Sex-linked trait; (b) sex-influenced trait, dominant in men (40 per cent), recessive in women (7 per cent); (c) two factors (pairs of genes); (d) sometimes dominant; (e) lethal; (f) variable expressivity (g) good expressivity; (h) poor expressivity; (j) sometimes recessive; (k) unilateral ptosis usually is due to nonhereditary causes (m) complete penetrance and perfect expressivity; a form involving only the index fingers and second toes has complete penetrance and poor expressivity; (n) high penetrance; (p) low penetrance; (q) dystrophic form also may be recessive; (r) often due to nonhereditary factors; (s) dominant in the white race with low penetrance and poor expressivity; recessive in negroes; (t) antecedent achlorhydria probably is dominant.

punity. However, half of their sisters can be expected to be heterozygous and one-half the sons of each of these will show the trait. Of course the male who shows the recessive trait will pass it on to all his daughters, though they will not show it unless they receive a gene for this trait from their mother also.

Blood group heredity is a combination of two types. A and B are both dominant to O but not to each other, blending to form AB when occurring together. Types M and N also blend but without dominance and are of practical interest only in genetic and medicolegal studies, since they do not produce any transfusion reactions, as do A, B, and O. There is also a new blood factor which is receiving some attention, as it is thought to be responsible for erythroblastosis. The theory is that when a baby inherits this dominant factor, known as Rh, from its father, while its mother lacks this factor, the mother's blood may hemolyze that of the baby in utero. This study is still, however, in the experimental stage and needs further confirmation.

The neat and exact pattern of dominance is somewhat confused by the fact that a member of another pair of genes may mask the presence of the one under consideration, and in that case the masking gene is said to be epistatic. The appearance of certain traits is also dependent on what are known as their penetrance (the degree of certainty with which one can count on their showing when the dominant genes which are responsible for them are present) and their expressivity (the stability which they show when affected by other genes or by environmental factors).

TABLE II

CONDITIONS DUE TO DOMINANT TRAITS

Absence of patella	Pterygium
Absence of upper teeth (b)	Fragilitas ossium
Achondroplasia (j)	Friedreich's ataxia (j) (p)
Allergy (f)	Glaucoma (n) (r)
Alopecia totalis	Gout (p)
Aniridia	Hemoptysis (non-tbc)
Arcus juvenilis (embryotoxon)	Hereditary cerebellar-ataxia (j) (p)
Astigmatism (j)	Hereditary essential tremor
Baldness (b)	Huntington's chorea (g) (n)
Bilateral ptosis (k)	Hypertrichosis
Blood groups A, B, and MN	Hyperopia (j)
Blue sclerae	Hypospadias (p)
Brachydactylia (m)	Hypothrichosis et dystrophia unguium
Cataract	Ichthyosis vulgaris (f)
Cerebellar degeneration (p)	Keratosis follicularis
Coloboma iridis (j)	Keratosis palmaris et plantaris
Congenital dislocation of hip (p)	Lagophthalmos
Corneal opacities (j)	Leucemia (p)
Diabetes insipidus (p)	Lobster claw
Diabetes mellitus (p)	Manic-depressive psychosis (f) (p)
Distichia	Migraine (g) (n)
Dystrophia myotonica (h) (n)	Mongolian spots
Ectopis lentis	Mongolism (p)
Epicanthus	Monilethrix
Epidermolysis bullosa (q)	Multiple cartilaginous exostoses (p)
Epilepsy	Multiple telangiectasis (p)
Erythroblastic anemia	Myopia
Familial hypereosinophilia	Myotonia congenita
Familial hemolytic jaundice (f) (n)	Neurofibromatosis (f) (n)
Familial periodic paralysis (p)	Nystagmus (a) (r)
Ophthalmoplegia (j)	Purpura (p)
Otosclerosis (a) (c)	Renal glycosuria
Ovalocytosis	Sickle-cell anemia
Paralysis agitans (p)	Strabismus (j)
Perceptive deafness	Supernumerary teeth
Peroneal muscular atrophy (a) (j)	Symphalangy
Phlebectasis	Syndactylism
Polydactylism (s)	Tropho-edema
Pernicious anemia (t)	Tuberous sclerosis
Psoriasis (j)	

See footnote to Table I.

TABLE III

CONDITIONS DUE TO SEX-LINKED TRAITS

Color blindness (red-green)	Nystagmus
Ectodermal dysplasia	Oguchi's disease
Hemophilia	Otosclerosis
Leber's disease (familial cerebro-macular degeneration)	Peroneal muscular atrophy
	Progressive muscular dystrophy
Megalocornea	Retinal detachment
Microcornea	Retinitis pigmentosa
Microphthalmos	

See footnote to Table I.

Sex-influenced traits are those in which one gene of the pair is dominant for males and the other for females. Pattern baldness is one of these traits and a form of white forelock described by Holmes is another.

Lethal factors are those which, in a homozygous individual, cause death at a fairly early age, even in embryonic stages. Some of these are due to dominant and some to recessive genes. The reason often given for the rarity of hemophilic females in families where they might be expected is that the

existence of two hemophilic genes in the female is probably lethal and they probably do not live beyond the early embryonic stage.

Concordance means the occurrence of the same condition in a significantly higher percentage of identical twins than of fraternal twins. Since genotypes of identical twins are always the same, this information will give a pretty good indication as to whether a condition is hereditary or merely due to family environment.

Sex-limited factors are those which are capable of expression in one sex but not in the other. This expression is believed to be controlled by the sex hormones appearing in early embryonic life, and in turn determined by the sex chromosomes.

Tables I, II, and III are derived from statements in the literature. In addition to the hereditary traits which follow one or more of these methods of transmission, many other conditions probably are hereditary, though their mode of transmission is still unclassified; e.g., aphasia (word blindness and deafness), ateliosis, cleft palate, dementia praecox, epistaxis, fingerprints, harelip, moronity (multiple factors), psychopathic inferiority, schizophrenia, skin color, and syringomyelia. Tumors also have an unclassified genetic basis, because the same type of tumor often occurs in the same organ at approximately the same age in various members of certain families, and especially in identical twins (high concordance); e.g., brain, eye, ovarian, and uterine tumors. Furthermore, certain families have an apparent predisposition to certain diseases, though the immediate cause is environmental; e.g., cretinism, diphtheria, measles, scarlet fever, and tuberculosis. Members of families in which these tendencies occur should be examined frequently and should avoid all known environmental causes of these conditions.

FABRICATING CHROME ALLOY INTO THE DIFFERENT TYPES OF TREATMENT APPLIANCES

UNDER THE DIRECTION OF GEORGE H. HERBERT, ST. LOUIS, MO., ASSISTED BY:
MARK PERRIN, TOPEKA, KAN.
LEO M. SHANLEY, ST. LOUIS, MO.
CECIL G. MULLER, OMAHA, NEB.
JAMES E. ROOK, ST. LOUIS, MO.
WAYNE WHITE, KANSAS CITY, MO.

THE purpose of the clinic was to give the orthodontist who was interested in using chrome alloy in his practice a chance to see his favorite appliance constructed with the metal, and to ask any questions and discuss any of his difficulties in using chrome alloy with the clinicians.

Both the welding and soldering methods were presented, and those interested in the detailed construction may refer to an article published in the AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY, December, 1941, issue, by Dr. Brooks Bell of Dallas, Texas, and Dr. George Siersma of Denver, Colo. The full detailed technique using chrome alloy was published in this article and will save repeating it at this time. However, some of the most frequent questions asked were as follows:

I. Question:
How do you place finger springs on lingual wires?
Answer:
Anneal about one-half inch of the wire to be used for spring usually 0.016—weld to lingual wire about the middle of annealed part of the wire, then wrap the spring around the arch wire until the annealed part is all in the part that is wrapped around the arch wire.

II. Question:
Why does a lingual wire break just at mesial bend of the post loop?
Answer:
The wire is being bent at the point where the annealed part stops. Be sure to make the post bend within the annealed part.

III. Question:
Why does a lingual wire not fit tightly to gingival?
Answer:
The wire has been too hot when annealing it to make the lingual post.

IV. Question:
Size of spring wire used on linguals?
Answer:
0.016 except in older patients, then 0.018

V. Question:
Size of loop wire just mesial to the buccal tube on labial wire?
Answer:
0.018

VI. Question:
Size of labial and lingual wires?
Answer:
0.036

VII. Question:
How do you make anterior bands by welding?
Answer:
Complete technique given in the article by Bell and Siersma; however, at present there are chrome alloy anterior bands on the market in sizes that by measuring the width of the tooth you can select bands that will save much time.

IX. Question:
What attachments placed on anterior bands to rotate the tooth?
Answer:
Weld loop on lingual or labial at distal or mesial as the case may be and close to gingival.

X. Question:
How to weld lingual extension to a molar bands?
Answer:
0.036 wire to band weld direct to band in three places, then use 0.003 by 0.017 and fit over wire, then weld on each side of wire direct through this strip to wire and you will need no solder.

XI. Question:
How do you rotate lower canines?
Answer:
Weld Ketcham hook on distal part of the labial, the opening to incisal, and use 0.020 labial wire, making loops for stops at buccal tubes fitting into Ketcham hooks and ligating to four anterior teeth.

At this clinic eight different types of appliances were shown with many combinations.

It seemed difficult to find someone who was using chrome alloy exclusively in constructing edgewise arch appliances; however, Dr. L. B. Higley, of the University of Iowa, sent the complete upper and lower appliance made of chrome alloy and mounted on a manikin, as he could not be there to demonstrate it.

Dr. Mark Perrin demonstrated the lingual expansion arch, soldering one side to the molar band and the other having the lingual tube using the coil spring for expansion.

Dr. Leo Shanley demonstrated the Pollock type of appliance, using chrome alloy, welded and reinforced by soldering.

Models of a treated case were shown with appliances consisting of a modification of the twin arch principles, using the twin-arch wire in conjunction with the regular labial arch; the small wires resting under the larger and engaging in the twin arch attachment on the bands which were on the anterior teeth.

Dr. Cecil G. Muller and Dr. James E. Rook demonstrated the twin arch, carrying out the following details. The most important step in constructing the twin-arch appliance is the lining up and placement of the buccal tubes.

First, the seamless molar bands are fitted and contoured, and an impression is taken in compound. When the bands have been removed from the teeth and placed in the impression a thin layer of vaseline is placed on the inner surface of the band. After the models have been run in stone and separated, a

mark is made on each molar band with a small file in the position the buccal tubes are to occupy. One should be extremely careful to remove the vaseline from the bands before attempting to weld. It is impossible to gain a perfect union through a layer of vaseline. Now the 0.036 buccal flanged tubes are placed on the molar bands. The file mark is to the proper position before the final weld is made. In lining up the tubes an 0.020 stainless steel wire is drawn into twin-arch tubes. This arch is more stable than the conventional twin arch and is most convenient in placing the buccal tubes. The tubes are pointed to the middle third of the first premolar, or other positions necessary, by placing the 0.020 alignment arch in the buccal tubes. The bands are now removed and the final weld is made. Here a Mershon contouring plier is used to make the flange conform more closely to the band.

Now you may construct the type of lingual expansion arch desired.

Materials used:

Band material for anterior teeth — 0.140 – 0.004
Band material for molar teeth — 0.180 – 0.006
Stainless steel wire for the twin arch — 0.010 – 0.011
Stainless steel wire for coil springs — 0.009 – 0.008
Coil springs are wrapped on 0.036 wire
Stainless steel end tubes outside diameter 0.036, inside diameter 0.022.
These tubes are 1⅛ inches long. The mid-section between the end tubes is 1½ inches.

Dr. Wayne White demonstrated the construction of removable mouthpiece attachment for use with occipital anchorage using all chrome alloy and welding technique.

Materials: Heavy round wire 0.070 (130 mm. long, approximately 5 inches); flanged buccal tubes for 0.040 wire; 0.040 round wire.

Construction: Flanges on two 0.040 buccal tubes are turned up to straddle the labial wire in bicuspid region and welded securely to arch wire.

Note: (Tubes should be placed neatly below or above arch so that cheek or gum tissue is not irritated. Both tubes should be parallel with the median plane to facilitate removal of mouthpiece without difficulty.) These are called auxiliary tubes to distinguish them from the buccal tubes used for holding the labial arch. One end of a section of 0.040 wire is placed in an auxiliary tube on one side and adjusted by bending to pass between the lips when closed in rest position with the least interference; then extended to other side and entering the auxiliary tube on that side in same manner as on opposite side. Stop lugs are welded on this wire at mesial end of each auxiliary tube to prevent wire from slipping through too far. Median line is marked on wire when in position and short section of 0.040 wire added extending directly forward. (This joint should be reinforced with brace rods or solder.) The ends of 0.070 wire are bent to form hooks and one 0.040 flanged tube welded on at center. This tube is placed on 0.040 wire extending from mouthpiece and lug welded to prevent its removal. Trim wire flush with lug.

Advantages: 1, Easily constructed in a few minutes. 2, Give equalized pressure from both sides. 3, Direction of pressure is parallel to median plane. 4, Crossbar keeps rubber attachment to headgear from pulling against the face or cheek. 5, Free rotation of bar on central spindle prevents twisting on arch if contacted by pillow or other objects. 6, Easily placed and removed by patient.

Editorial

Dr. C. C. Howard Retires

The story is told about a dental confrere who asked why it is that so many orthodontists retire from active practice after they have passed the half-century mark. Some wit countered with the quip that the reason is that each year an orthodontist practices his specialty, he feels that he knows less and less about more and more of his subject; therefore about the time he reaches the half-century turn in age and experience, he wants either entirely to revise his plans of procedure or retire.

Notwithstanding the above observation plainly made in jest, it may be nonetheless partly true. Be that as it may, it is interesting to note that Dr. C. C. Howard of Atlanta, Ga., is another orthodontist of wide experience who has announced his retirement from practice after thirty-one years of constructive work in the orthodontic field. Inasmuch as Howard takes the pains, however, to point out that his health will no longer permit him to continue in active practice, the more and more about less and less quirk obviously is here ruled out in its application.

Dr. Howard's retirement creates much interest not only because it recalls many things in connection with his orthodontic activities, but it reflects the vigorous life work of a restless spirit and a colorful individual in the orthodontic panorama. Much of his work has been devoted to trying to find out more about the complex biologic fundamentals of the orthodontic problem. Probably the most outstanding contribution he made was his correlation of what is commonly referred to in medical literature as the Howard syndrome. It is interesting in this connection to note what the *American Illustrated Dictionary* has to say about the word syndrome. It says that a syndrome may be recognized as a "complex of symptoms; a set of symptoms which occur together; the sum total signs of any morbid state." It seems little was known about the subject of the relation of malocclusion to endocrinology before Howard started his work. Perhaps about as much as was known was that occasionally the comment was heard that "flatfeet and malocclusion may have the same etiology in childhood." Insofar as it is possible to ascertain, the Howard syndrome is the first well-defined classical physical picture that was recognized within the ranks of the dental profession and that was quickly taken up and recorded in the literature of scientific medicine as a syndrome of importance.

In seeking information about his work it is noted that a report from the Medical Director of the Good Samaritan Clinic in Atlanta, Dr. J. K. Fancher, has this to say:

> Dr. Howard was a member of the Staff of the Good Samaritan Clinic for endocrine research for eighteen years. During that time he made various notable contributions of a scientific nature based upon observations made at the Clinic.

> We feel that the honor being paid him in having a syndrome named for him is only his just desert for his noteworthy achievements. It is our hope that the trail he has blazed will become a broad highway because of further investigations showing the connection of hormonal action and orthodontic difficulties.
>
> We are proud of Dr. Howard and his work here, and congratulate him.

To get back somewhat to a series of circumstances, leading up to the syndrome, very early in his career, Dr. Howard became interested in the study of biology, the science of life on the ground, in the air, and in the water. He felt that in modern education this study in most schools is conducted within the walls of classrooms and upon dead specimens and inert objects. Accordingly in appraising the traditional orthodontic picture through his own perspective, that is to say, on observing the plaster cast evidence of the relative position of the mesiobuccal cusp of the maxillary first molar or the orbital plane relationship to the canine eminence, this was inadequate for the problem in hand and went only part way. He obviously felt that while they were good yardsticks or something with which to survey from a given point, nonetheless the physical tie-in was missing. Notwithstanding the very fine and satisfactory strides that had been made in the subject heretofore, he plainly felt that there was still much to be desired. He worked with medical men in the Good Samaritan Clinic in Atlanta, Ga., in which clinic they study the picture of the entire individual in all physical phases and try to coordinate the entire physical picture of the whole body. Out of this experience came fifteen papers by him, most of which have been formally recorded in either medical or dental literature. He coined the word "acromegaloid" growth, and that word obviously came about as a result of the observation that there is a classical type of individual everywhere with an obtuse, bulky mandible; the type well known in the Angle classification as Class III. According to Howard, but few of these cases are of local origin or are true, actual acromegaly as described and identified years ago by the Frenchman, Marie. Howard reported that there is much more to this overall picture of Class III than the local maxillary and dental concept, and he reported a combination of symptoms common to these cases of which the bulky mandible is only one of many. Another symptom is early puberty, also it was found by checking with thousands of x-ray pictures of the hands that the epiphyses unite with the parent bones at a very early age. By checking hundreds of clinical records, it was ascertained that the perverted mandibular growth checked side by side with still other symptoms that were too obvious to ignore. Such was the beginning of the story of the Howard syndrome that has attracted wide attention in medical circles and literature.

The story of the typical acromegalics dates back many years in scientific literature; however, the acromegaloid growth picture in orthodontics (meaning like acromegaly) was correlated first by Howard. Out of this came the observation credited to him on the subject of orthodontic diagnosis, namely that, "The first and most important information necessary for a sensible orthodontic diagnosis is the general visual survey of the child as an entire physical individual." The Howard syndrome, as we understand it, to be more specific, is characterized by certain physical markings: a lower jaw that protrudes, a long

obtuse angle formed by the ramus, and a horseshoe body that is decidedly obtuse. The following history, in short, is classical: they say he was born that way (inherited hormones) and that gradually the deformity became more manifest and as a rule, even in young children morphology is precocious. The epiphyses become a unit of their parent bones at an unusually early age. (The buttons and the long bones grow together years before the average). The typical individual has a high I. Q. Pubic, axillary, and body hair incident to pubescence occur at an early chronologic age. Comment credited to Howard is that mechanical stimulation through orthodontic appliances alone has little permanent and lasting effect in these cases commensurate with the effort expended. He further claimed that the impulse of the hormone is entirely too persistent to be permanently influenced by the impetus of a delicate mechanical device regardless of the type or design.



Dr. Clinton C. Howard and grandchildren, Anthony Joseph Drexel, Helen Diana Drexel, and Clinton Howard Drexel.

Dr. Howard was born on a plantation in the black belt of Alabama from forefathers of southern pioneer planters. From these he must have inherited much of the urge, restless spirit and energy that have enabled him for many years to devote so much of his time and enthusiasm to orthodontic uncertainties. From these forebears, he must have absorbed the perseverance that has enabled him to stand by his guns and fight for his almost religious orthodontic convictions over a long time. He attended liberal arts college for more than three years then took his degree in dentistry at the University of Southern California. He at-

tended the Angle School of Orthodontia in New London, Conn., in 1911 and as a result of that experience pioneered the practice of orthodontics as a specialty in the city of Atlanta, where he practiced continuously until his recent retirement. During all of this period he could be regarded as an ardent orthodontic enthusiast but continuously preached the doctrine that orthodontics must emerge from the "slide rule" stage to a biologic light of day before it may ever hope to enjoy the true greatness as a science that is capable of attainment.

He is a past-president of the American Association of Orthodontists, the first president of the Southern Society of Orthodontists, and has been a liberal contributor to the progress of these and other dental societies for many years. He admits freely that he is an agnostic by instinct and environment, and this may be one reason why he has created another chapter of importance in orthodontic progress. He has been responsible for many men looking deeper than the applied physics concept into their orthodontic problems of diagnosis, and he has been the inspiration for the injection of more caution into the minds of his colleagues pertaining to the treatment prognosis of their cases. In relentlessly and singlehandedly campaigning and pointing out the limitations that may be expected of orthodontic treatment by itself in practice, he is probably the outstanding conservative of this particular orthodontic epoch, insofar as treatment possibilities are concerned. In recognition of many contributions his home district, the Fifth District Dental Society of Atlanta, Ga., recently expressed its gratitude by bestowing upon him the first life membership ever presented by that society. In addition to that he was presented with a gold membership card engraved with appropriate words of appreciation for his untiring efforts directed to the benefit of dentistry over a period of thirty-one years.

Clint Howard, as he is familiarly and affectionately known by so many, is an individual whose personality radiates good humor that is contagious, and he enjoys a host of friends in and out of his profession who will wish him continued happiness during retirement from practice. According to reports he expects to devote much time to his favorite outdoor classroom, hunting and fishing, and in this atmosphere it is presumed he will learn more and more as to what makes things grow in the fantastic formations that they do. In these jaunts if he sees a tree with an abnormal shape or snares a fish with a protruding mandible, those who know him best know that he will probably grasp his pocketknife, do an impromptu post mortem and try to find out something about the dental occlusion of the fish. He will then, no doubt, say that the formation was predestined in the original chromosomes and hormones long before the fish got in the fix he now is in; so it is too late to do much about it.

His has been a contribution to orthodontics that has attracted more attention in the medical profession than has any other phase of orthodontics since its beginning, and so was born the Howard syndrome.

Dr. Howard's address is now 130 Brighton Road, Atlanta, Ga.

H. C. P.

Department of Orthodontic Abstracts and Reviews

Edited by

Dr. J. A. Salzmann, New York City

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmann, 654 Madison Avenue, New York City.

Anisocoria Due to Irritations of Dental Origin: By Dr. Argentino J. Pellegrini, *Odotologo*, Argentina, September, 1942.

In this article, the author describes the different types of anisocoria (pupillar inequality) and presents a clinical case of anisocoria in mydriasis caused by an abnormally located tooth.

A 23-year-old Argentine nurse complained of a violent headache at the right side of the cranium with irradiation toward the base of the skull. On intraoral examination we observed not very extensive amalgam fillings in the upper right first and second molars, in the upper left first molar, in the lower right first and second molars, and in the lower left third molar. The upper central incisors presented a slight deviation and the characteristic barrel-shape of Hutchinson's teeth. The sound upper right third molar was in marked buccoversion.

The patient called our attention to a marked anisocoria of the right pupil, in mydriasis, in which the diameter was double that of the normal pupil. She complained of no other symptoms, and the medical examination did not reveal any cause for her affection. Wassermann test proved negative. A complete series of x-rays disclosed no septic foci and showed the teeth to be in healthy condition.

Extraction of the upper right third molar was advised, because of its malposition, without connecting the tooth with her pupillar affection. The day after the extraction the headache disappeared, and at the end of a week the right pupil returned to normal diameter. Bearing in mind the contention of A. Money who attributes certain anisocorias to sensory excitations through the cutaneous endings of the trigeminal nerve and the happy result of the extraction, the author believes the presentation of this case would prove interesting in order to point out the possible connection between dental irritations in anisocorias which do not respond to treatment or those of obscure etiology.

Testut points out that the nasal nerve, a branch of the ophthalmic, sends forth a long and thin filament which constitutes the sensory root of the ophthalmic ganglion which gives off several efferent branches to form the ciliary nerves. These nerves form the Arnold or Ivanoff plexus which enervates the ciliary muscle, the iris, and cornea. Therefore, we can infer that any irritation that acts through the dental endings of the trigeminal nerve could, through the gasserian ganglion, produce pupillary nervous disturbances.

Carlos Giro.

Pseudo-Ankylosis of the Temporomandibular Joint: By Dr. F. Antonio Loza, *Revista Estomatologica de Cuba,* June, 1942.

After presenting a short study of the limitations of the temporomandibular joint, the author describes a clinical case of false ankylosis of the mandible due to scarring. This was treated by surgically freeing the cicatricial adhesions plus application of an Ivy splint.

The patient, a child aged 10 years, was admitted in Dr. Inclan's Orthopedia and Traumatology Service, with an apparent ankylosis of the mandible. Three years previous, it was noticed that the patient's urine diminished in quantity with edema of the face and limbs. Five mercury bi-iodide injections were given.

Following this treatment the boy showed intense stomatitis with ulcerations around several carious teeth. In addition a generalized dermatitis accompanied by extensive desquamation was apparent. Subsequently, increasing difficulty in the temporomandibular movements was noticed, so that on his admission to the clinic there were manifest limitation and trismus causing great difficulty in mastication and in articulated speech.

During all this time, the patient made no complaint of pain. Clinical examination revealed limitation of the aperture of the mouth to less than three millimeters' separation of the anterior teeth. Oral hygiene was poor, with several teeth in an advanced carious condition. Pronounced adhesions were formed of the mucous membrane in the retromolar areas and the mucobuccal folds of both sides of the mouth. On the buccal surfaces of the cheeks a very fibrous and inelastic tissue was present, closely allied in appearance to the corresponding scars of the ulcerations caused by the mercurial stomatitis suffered by the patient. The general condition was normal.

Treatment included the following: (A) Hygienic Measures: Mouthwashes and toothbrush instruction. (B) Surgical Treatment: Under local anesthesia we proceeded to free the buccal adhesions and to resect the cicatricial tissue that substituted the normal mucosa of the cheeks.

The fibrosis was so pronounced that this tissue creaked noticeably while being incised. As the dissection proceeded, the buccal aperture increased. The operation was completed by liberating the mucosa of the retromolar spaces.

Gauze and propidex salve were applied to prevent infection and readherence of the tissues. A mouth opener operated by an elastic band instead of its ratch was applied to keep constant dilatation. The patient left the surgery with a separation of 12 mm. between the incisal edges of the anterior teeth.

As soon as the opening of the mouth permitted, impressions were taken, and an Ivy apparatus was made to be applied twice during fifteen minutes. This device exerted continuous dilatation that could be controlled at will by means of a graduated screw.

Four years after the operation, the patient does not show any appreciable diminution of the range or movements of the mandible.

Carlos Giro.

Manual of Standard Practice of Plastic and Maxillofacial Surgery: Prepared and Edited by the Subcommittee on Plastic and Maxillofacial Surgery of the Committee on Surgery of the Division of Medical Sciences of the Na-

tional Research Council, and Representatives of the Medical Department, United States Army. Robert H. Ivy, Chairman; John Staige Davis, Joseph D. Eby, P. C. Lowery, Ferris Smith, Brig. Gen. Leigh C. Fairbank, Medical Department, United States Army; Lt. Col. Roy A. Stout, Dental Corps, United States Army; with contributions by John Scudder and Frederick P. Haugen. 432 pages with 259 illustrations. Price $5.00. Philadelphia and London, W. B. Saunders Company, 1942.

The present volume is one of a series intended to present in compact form essential, modern and reliable information regarding military surgery. While the information is especially intended for military surgeons, its application will be found equally useful in civil emergencies in which wounds and injuries are, as a rule, similar to those occurring in modern warfare.

Section I of this book is devoted to *Reconstructional Surgery* and includes, in addition to the general consideration of head wounds, a detailed review of the procedures to be followed in the treatment of wounds affecting lips, facial muscles, the nose, the eyes, ears, and neck. Over 250 of the 400 pages of text are thus devoted to plastic surgery; 60 pages to maxillary surgery, and only 35 pages to maxillofacial prosthesis; the balance of the book is devoted to anesthetics.

From the standpoint of the dentist and oral surgeon, it is not so much a question of what has been included as the relative amount of space devoted to the specific field of operation which most concerns them. Plastic surgery of the face and jaws is now recognized to be outside of the category of emergency treatment which the dental surgeon is called upon to provide under combat conditions. Wounds about the face and jaws have been accorded three divisions from the standpoint of treatment, as follows: (1) First-aid treatment including control of hemorrhage and shock, (2) an intermediate stage which includes débridement and control of sepsis, and (3) a reconstructive period during which plastic surgery and surgical prosthesis are performed.

Since the plastic surgical phase is not in the nature of emergency treatment, it would seem that this should have been accorded due recognition and more space devoted to the phases of a greater emergency military surgical nature.

Treatment of gunshot wounds, fractures involving the jaws and maxillofacial orthopedics are discussed in Section II, edited by Fairbank, Stout, Ivy, and Eby, and follow a logical sequential order. The various types of wounds are described and first-aid and emergency treatment are discussed as are early care and definitive treatment. This section is brief, authoritative, and practical, as one would expect from the outstanding authorities who edited it. The illustrations are of a practical nature and follow closely the techniques described. Dentists and oral surgeons will find this section alone well worth the price of the book.

Maxillofacial prosthesis by P. C. Lowery comprises Section III and continues the high standard of authoritative information contained in this volume. Here again the illustrations are many and of higher practical value. The book has a good index.

Textbook of Embryology: By Harvey Ernest Jordan, M.A., Ph.D., Sc.D., Professor of Anatomy and Director of the Anatomical Laboratories, University of Virginia, and James Ernest Kindred, M.A., Ph.D., Professor of Anatomy, University of Virginia. Illustrated. Fourth Edition. Pp. 613, New York, D. Appleton-Century Company, 1942.

This edition includes much recent data on experimental and comparative embryology. Attention is given to recent investigations on "inductors." The chapter on the human embryo contains valuable tables of normal development. An interesting chapter is that on the development of the face. There are a number of new illustrations included here which should aid the orthodontist in understanding the ontogenetic growth of the face. The foregoing is true also of the sections on the jaws and teeth.

The histogenesis of bone, which is of especial interest to orthodontists, is adequately presented and illustrated. Jordan discusses the "Recapitulation Theory," usually expressed as "ontogeny tends to recapitulate phylogeny" in the light of modern embryologic experiments. A chapter on body growth and a series of laboratory exercises are included.

Annual Review of Physiology: By James Murray Luck, Editor, Stanford University, and Victor E. Hall, Associate Editor, Stanford University. Volume IV. Pp. 709. Price $5.00. Published by the American Physiological Society and Annual Reviews, Inc., 1942. On Sale by Annual Reviews, Inc., Stanford University, P.O., California.

Every phase in the field of physiology is reviewed in this volume, as in previous ones. The section on developmental physiology contains reviews on the latest contributions to the development of form and on embryonic induction which has been given attention recently in orthodontic literature.

Avery, in his introductory remarks to the section on growth, states: "In any satisfactory analysis of growth problems the morphological response of the organism should be critically studied in relation to both external and internal factors. At present, relatively few organisms are sufficiently well known to make this possible, thus perhaps the most fruitful experiments on the physiology of growth remain to be done."

There are interesting accounts on the physiology of saliva, the sense organs, and the salivary glands. An extensive bibliography, authors' index, and subject index are provided which make this work valuable for reference purposes.

Medical Genetics and Eugenics: By Charles B. Davenport, B.S., A.B., A.M., Ph.D., Sometime Director of the Eugenics Record Office and the Station for Experimental Evolution of the Carnegie Institution of Washington, Cold Spring Harbor, Long Island, Clyde E. Keeler, B.S., M.A., M.S., Sc.D., Fellow of the Wistar Institute, Philadelphia, Formerly Instructor in Ophthalmological Research, Harvard Medical School, Maude Slye, A.B., Sc.D. (Hon.) Director of the Cancer Laboratory, Otho S. A. Sprague Memorial Foundation, University of Chicago, and Madge Thurlow Macklin, A.B., M.D., L.L.D., Associate Professor of Anatomy, Western Ontario

Medical School, London, Ontario, Canada. 141 pages, Philadelphia, Pa., Woman's Medical College of Pennsylvania.

This volume embraces six lectures on medical genetics and eugenics delivered in connection with the ninetieth anniversary of the founding of the Woman's Medical College of Pennsylvania. Three of the lectures were delivered by the well-known geneticist Charles B. Davenport. These deal with human variability and mate selection, and some social applications of eugenics and heredity in relation to medicine. The value of animal experiments to the understanding of human genetics is contributed by Clyde E. Keeler. A lecture on cancer and heredity is included by Maude Slye, and one on the value of medical genetics to the clinician by Madge Thurlow Macklin.

Davenport presents the interdependence of heredity and environment as well as the innate structural, physiological, mental and temperamental differences in people. He discusses the inheritance of body build.

Macklin points out that determination and differentiation of character of genetic action does not all take place prior to birth as commonly believed. Many genetic characters may manifest themselves through all ages. It is predicted that the next half century will see a new field opened up, that of combating hereditary diseases through genetic control. The teaching of genetics in medical schools is advocated as a means of producing a healthy race.

Traumatic Surgery of the Jaws Including First-Aid Treatment: By Kurt H. Thoma, D.M.D., Professor of Oral Surgery and Brackett Professor of Oral Pathology, Harvard University; Oral Surgeon to Brooks Hospital; Consulting Oral Surgeon to New England Baptist Hospital; Visiting Oral Surgeon, Beth Israel Hospital; Surgeon, Dental Department, and Consultant to Tumor Clinic, Boston Dispensary. With 282 Illustrations, 315 pages, St. Louis, The C. V. Mosby Company, 1942.

War injuries of the jaws are essentially traumatic in character. It is from this standpoint that Thoma approaches the subject. This volume is intended to assist the dentist and the student in his preparation for first-aid and emergency treatment of jaw injuries. New procedures are presented for the dental and oral surgeons on the treatment of unusual cases. A feature of the book is the section dealing with injuries of the temporomandibular joint and condylar fractures which are especially common. Thoma does not stress plastic operations which he considers to be not of immediate concern to those who give the initial treatment to the injured.

In the chapter on first-aid treatment, attention is paid to the general condition of the patient; treatment of shock, arrest of hemorrhage, bandaging, and transportation. Descriptions are presented on examination of the patient and treatment planning. The various injections for local anesthetics are described and unusually well illustrated. A description of war wounds about the face and oral cavity is presented, and various methods of treatment are given. Injuries of the teeth are considered as a separate entity. Fixation of luxated teeth is recommended as a basic procedure. "Totally luxated teeth," the author advises, "may be replanted, but it is necessary to remove the pulp and fill the root canal."

A method of construction and using splints for the fixation of luxated teeth is described. The chapter on fractures of the mandible presents a classification and methods of treatment within the dental arch which employ interdental wiring and splinting. Treatment of fractured mandibles by extraoral skeletal fixation is described in detail. This method is used in the British Maxillofacial Hospitals when there is an inadequate number of teeth or a considerable displacement of fragments and may be applied immediately to any fracture giving perfect control to all fragments by allowing them to be adjusted in correct anatomic position. This method does not require intermaxillary ligation, permitting use of the mandible. The dangers of intermaxillary wiring of the jaws of soldiers who are transported by sea, and subject to seasickness, are thus minimized. The principle of this apparatus is the use of universal movement clamps. Various extraoral appliances such as the Berry screw implantation method or the Griffin appliance, consisting of screw pins, ball socket bars, and adjustment bars, are described. These appliances can also be used to effect favorable alignment of markedly displaced condyles.

Fractures of the maxilla, often superficially cited in books on traumatic surgery of the jaws, are here given full consideration. The skull cap, as advised by Ivy and Curtis, is described, as is the Woodard appliance and intraoral metallic splints.

The book is well illustrated with halftones, showing practical cases under treatment.

A Textbook of Bacteriology: By Thurman B. Rice, A.M., M.D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine. Ed. 3, Revised, 560 pages, Philadelphia, W. B. Saunders Company, 1942.

This text is designed to meet the needs of those who desire full understanding of the subject and who do not have or cannot find the time to go over all the fine points of theory. It is especially intended to serve as a practical textbook. Morphologic and cultural descriptions of the organisms are briefly presented and the text material is extremely condensed. Vincent's angina is the name given by Rice to what is familiarly known to dentists as Vincent's infection. Dentists are wont to consider Vincent's angina as that phase of the infection which occurs about the tonsils and throat. Medical dictionaries agree with Rice's nomenclature, while dental dictionaries differentiate between Vincent's angina and Vincent's infection.

The etiology and bacteriology of dental caries are presented. "It is now pretty well agreed," says Rice, "that bacteria play an important role and not unlikely are more important than all other causes together. Many of these other causes (of dental caries) seem to exert an effect through other influences upon bacterial flora."

The author cites W. D. Miller, Kligler, and other authorities in support of his contention of the importance of bacteria in the etiology of dental caries. The flora of the mouth and pharynx are described including those of the normal tissues as well as the pathogenetic organisms. An important appendix of

the book is the one on rules for bacteriologic nomenclature. A detailed index is provided.

Factors in the Position of the Mandible: By John R. Thompson, and Allan G. Brodie, *J.A.D.A.* **29:** 925-941, June, 1942.

There are conflicting schools of thought on the effect on the mandible of losses in vertical dimension, through either attrition or extraction. Current beliefs are as follows:

1. The mandible assumes a new relation to the maxilla which may be characterized by a protrusive drifting or a decrease in the vertical height of the face between nose and chin, with a resulting falling-in of the lips.

2. The loss of the "stopping" action of the teeth permits the masseter and internal pterygoid muscles to exert an unopposed pull on the angle of the mandible. This tension gradually flattens the angle and warps the neck of the condyle, causing a lengthening of the bone with consequent projection of the chin.

3. These changes in position of the condyle may, and frequently do, give rise to the so-called syndrome of Costen, the major symptoms of which are joint pains, clicking noises and deafness of varying degrees.

The lateral x-ray picture of the living infant never shows the mandible and maxilla in approximation when at rest. On the contrary, the jaws are always apart and the tongue always protrudes between them, supporting the lips. If the angular relation between the lower border of the mandible in a resting infant and the line from nasion to silla turcica is measured, the reading will be the same as that obtained (in the same individual) after all the teeth are erupted.

In the newborn infant, the tongue is closer to adult size than any other part of the head, except the brain. Its growth, while far ahead of that of the jaws, has almost ceased, while these other parts will continue to grow for from eighteen to twenty years longer. After birth, there is not much downward growth of the lower border of the mandible; and by age 6 years, it has apparently ceased altogether. The alveolar border, however, grows upward at a rapid rate. A similar growth brings the upper alveolar process down. Add to this the eruption of the teeth and the forward growth of the entire facial mask and we can visualize how the the tongue comes to be enclosed by the growth of surrounding parts without any change in the relative position of the mandible. At no time is the tongue fully enclosed.

The mandibular condyle is the most active and persistent growth center in the entire head after birth. It is covered with a cartilage that seems to possess the potential of an epiphysis. As the condyle grows upward, the entire mandible is thrust downward at a rate that enables this bone to maintain an unchanging relationship with the rest of the face. Disturbance of this growth center through a fall or through surgical interference leads to a characteristic deformity which is not due to loss of function.

The angle of the mandible is generally stated to be obtuse at birth, gradually closes downward in right angle form and returns toward the obtuse upon the loss of the teeth—the posterior teeth in particular. If one studies the

same living children from birth until all of their second teeth except the third molars have erupted, he fails to find in a single individual any change in that portion of the mandible that is called the angle. It is perfectly true that one will find variation in obtuseness or acuteness between individuals, but the angular pattern found in the first x-ray picture of a child will be the same as that found at any subsequent growth stage.

The pattern of the head of the individual is laid down before the third month of postnatal life, probably very much earlier, and thereafter does not change.

The growth of the various bones comprising the head, although highly individualized for each, is so integrated that the various anatomic points travel in straight lines.

The proportions of the three areas of the face, i.e., nose, upper alveolar and dental areas, and mandible, have a strong tendency to remain constant. The angles formed by the various planes of the face with those of the cranium are the most stable of all relations. The mandible assumes its preordained relation with the rest of the face and head long before any teeth have erupted, and this position is constant and characteristic for the individual.

The muscles lying anteriorly from the vertebral column, i.e., the masticatory, suprahyoid and infrahyoid groups, have, as their roles, not only their own specific functions, but also a team play which helps to maintain the posture of the head. This coordination permits mastication, deglutition, and speech without any accompanying nodding of the head. We have been thinking of the mandible too much as a bone concerned with a single function, rather than as a connecting link in this anterior muscle chain. The muscle tension acting on the mandible is balanced; that is, there is just as much downward pull, as there is upward pull on this bone.

In normal opening, the external pterygoid muscle plays the major role by pulling the head of the condyle downward and forward, while the hyoid bone is maintained at a constant level. This means that this particular muscle is contracting while the other three muscles, namely masseter, internal pterygoid, and temporal, although controlled by the same nerve, are relaxing. The suprahyoid group tenses only enough to prevent the hyoid from descending. Where the external pterygoid has been interfered with, as in resection of the condyle, it is found that the patient is scarcely able to open the mouth immediately after the operation. As time goes on, however, the suprahyoid and infrahyoid muscles are re-educated and take over the function of depression of the mandible. In order to do this, it is necessary that the infrahyoid muscles pull the hyoid bone to constantly lower levels with each degree of opening in order that mechanical advantage be increased. Such movement is always of the hinge type, and the opening, even after the lapse of a year, is always markedly diminished to below the normal.

From the foregoing we believe that the spatial position of the mandible is an individual characteristic which is as stable as any part or any other relationship which is not affected by the presence or absence of teeth.

The loss of teeth was not causing any change in the rest position of the mandible. However, wide differences were seen in the effect of extraction on

different people. In some, the loss of teeth was followed by no great change; in others, the face, from nose to chin, seemed to collapse into the nutcracker pattern that has been held to represent the senile stage. Those patients who seemed to be closing down were actually not holding the mandible in any different position, but were suffering from more rapid alveolar resorption. Furthermore, such resorption affected not only the height of the processes, but the thickness as well. The labial plate seemed to suffer equally with the crest so that the lips were robbed of not only the support of the teeth, but also that of the alveolar process. The lips dropped inward because of loss of the lingual support and this made the chin appear to be more prominent. This facial change has frequently been ascribed to a decrease in the vertical dimension. In one case, the vertical dimension is actually increased in the edentulous x-ray tracings. This was to be expected since the patient had been instructed to close the teeth, while, after extraction, the mandible was at physiologic rest. This rest position was confirmed in an x-ray picture made one month later.

In a number of the cases examined, the bite had been unintentionally opened by the dentures. In all these cases except one, the alveolar process underwent sufficient resorption not only to permit the mandible to return to its position of physiologic rest, but to provide a free-way space besides.

The partial cases were similarly illuminating. Here, we found that when the bite had been raised by such restorations, the mandible returned to its normal position even though this necessitated the depression of abutment teeth.

We are fully aware of the excellent results being obtained in many cases of so-called bite opening, and it would seem that this evidence tends to disprove it. This however, is not the case. When the evidence is analyzed, there is no conflict, except in point of view. The error has arisen through the belief that when teeth are lost, the mandible assumes a different relation to the maxilla, being drawn closer to them and giving rise to the various symptoms that are associated in the Costen syndrome. This, we feel, is false. In fact, there was one case in which the bite was raised and the patient complained of most of the symptoms of the Costen syndrome, usually attributed to closure of the bite.

During various masticatory excursions, the edentulous jaw may be, and frequently is, overclosed. Roentgenograms showing such overclosure fail to reveal, however, that the condyle is driven into new and damaging positions. The symptoms are probably attributable more to neuromuscular than to mechanical conditions and are identical in nature with those found around any joint when a sudden movement carries a part beyond its usual and coordinated path.

Since a roentgenogram of a patient with a normal denture will invariably show a rest position when the teeth are just out of occlusion, it would seem that efforts at restoration should stop at this same point. It has been interesting to note that, in the vast majority of patients with excessive overbite, the rest position indicates a normal degree of incisal overbite with the posterior teeth as much as one-fourth inch apart. This would give ample room for the placing of any prosthesis and would, at the same time, prevent overclosure during function.

The early studies on the growth pattern had shown that there was a remarkable stability in the proportions of the various parts of the face. The first intimation of this was gained when it was found that the average curves representing the growth of the various parts making up the anterior vertical height of the face yielded the same percentages regardless of the age at which they were examined. The nasal height, from nasion to anterior nasal spine in particular, seemed to be very consistent in its behavior, always yielding 43 per cent of the distance from nasion to bony chin point.

For those who are seeking such a guide to this clinical problem, we would suggest that they try the x-ray technique of establishing the position of physiologic rest. The prime requisite is sufficient target distance. If a lateral view is taken at any distance beyond 5 feet, and if the head is so positioned that the sagittal plane is parallel to the film surface, and both of these are at right angles to the axis ray of the tube, a very satisfactory image will be obtained. Nasion, anterior nasal spine, and chin point can be readily and accurately located. Since subsequent pictures, taken without accurate control of distance, may yield differences in absolute size, work should be carried on by means of percentages only. Briefly, this means that total face height, or the distance from nasion to chin point, is taken as 100 per cent, with nasal height, or the distance from nasion to anterior nasal spine, expressed as a percentage of total face height. The remainder would constitute the area from anterior nasal spine to chin. If a subsequent picture, with trial dentures or other prostheses in place, yielded the same relative percentages of these two parts when the jaws were in rest position, one should feel reasonably certain that he has not exceeded the limits of the normal physiologic rest position.

These investigations, the authors believe, justify their belief that:

1. The form and proportions of the human mandible are determined at a very early age and, once established, do not change.

2. The position of the mandible in relation to the rest of the face and head is an integral part of the pattern of the individual and is just as unchangeable as is form.

3. The presence or absence of teeth has little, if any, bearing on the form of the mandible, exclusive of the alveolar process.

4. The presence or absence of teeth has little, if any, bearing on the rest position of the mandible, which is always such that the teeth are out of occlusion to a greater or less degree.

5. The rest position of the mandible is a result of a complex muscular coordination existing between the postcervical muscles and those groups lying anteriorly which are concerned with the functions of mastication, respiration, deglutition and speech. Acting as a unit, they contribute to the balanced posture of the head.

6. The proportions of any face, as far as vertical height is concerned, are constant throughout life.

7. The mean nasal height is 43 per cent.

8. The Costen syndrome is not the result of a new position assumed by the mandible through loss of dental height, but rather is induced by overclosure

of a mandible in function. It can be more logically explained on the basis of neuromuscular than on the basis of mechanical conditions.

9. If the mandible is carried, by artificial restorations, to a position beyond that of physiologic rest, it will return to its preordained position through an accommodation of the alveolar process or a depression of the abutment teeth.

Macleod's Physiology in Modern Medicine: Edited by Philip Bard, Professor of Physiology, Johns Hopkins University School of Medicine. With the Collaboration of Henry C. Bazett, Professor of Physiology, University of Pennsylvania; George R. Cowgill, Associate Professor of Physiological Chemistry, Yale University School of Medicine; Howard J. Curtis, Instructor in Physiology, Johns Hopkins University School of Medicine; Harry Eagle, Passed Assistant Surgeon, United States Public Health Service and Lecturer in Medicine; Chalmers L. Gemmill, Associate in Physiology, Johns Hopkins University School of Medicine; Magnus I. Gregersen, Professor of Physiology, College of Physicians and Surgeons, Columbia University; Roy G. Hoskins, Director of Research, Memorial Foundation for Neuro-Endocrine Research, Research Associate in Physiology, Harvard Medical School; J. M. D. Olmsted, Professor of Physiology, University of California; Carl F. Schmidt, Professor of Pharmacology, University of Pennsylvania. Ed. 9, 1256 pages, price $10.00. St. Louis, The C. V. Mosby Company, 1941.

The present volume, the ninth edition, follows the format adopted in the eighth edition, in that each of the collaborators contributes a section devoted to one of the major fields of physiology, in which he is particularly interested. The chapter on muscular contraction by Bard will be found of especial interest by orthodontists. The parts on mastication and deglutition are presented in an authoritative and interesting manner and are uniquely illustrated. Part VII, The Endocrines, by R. G. Hoskins contains much of direct interest and practical value to orthodontists. An extensive bibliography is included and a detailed index has been provided.

Masticatory Stresses and Their Relation to Dental Caries: By Meyer Klatsky, *J. Dent. Res.* **21**: 387-390, August, 1942.

The object of this study by Klatsky was to investigate the relationship, if any, between the degree of development of the masticatory apparatus and the incidence of dental caries; and also the effect of use and exercise upon the strength of the jaws and muscles.

Two hundred persons, 100 male and 100 females, were carefully selected from among several thousand patients who presented themselves at the dental division of the Health Center of the Workmen's Circle in New York City. Each person was carefully examined for caries, and the caries index and maximum biting stress were recorded.

All cases of advanced periodontoclasia and painful gingival conditions, of deep caries with pulpal involvement, or where the pulp had been devitalized

and treated, were eliminated. Only individuals with incipient dental caries, or in whom cavities had been eliminated by fillings were included. It was assumed that these factors cannot affect the biting strength or interfere with the free exertion of masticatory stresses.

The mouthpiece of the gnathodynamometer was inserted at the first molar region and the subject was told to bite as firmly and as forcefully as possible to attempt measuring the maximum pressure. In many cases, the test was repeated once or twice, and the maximum registration was recorded. Both sides of the mouth were thus tested.

In the male group, the highest masticatory pressure recorded was 210 pounds, and the lowest 55 pounds. Average for the 100 males was 112.86 pounds on the left side, and 119.59 on the right. For females, the highest was 165 pounds and the lowest 25 pounds. Average 83.91 pounds on the left side and 85.75 on the right.

The caries index ranged from zero to 50 in the male group, averaged 18.96; for females, zero to 51, average 23.82.

A comparison of the male and female records shows that the biting stress of the average male is much greater than that of the average female. On the other hand, the caries index of the average male was lower than that of the female. A similar inverse ratio between the amount of biting stress and the dental caries index seems to exist when comparisons are made within the sex groups. This indicates that the state of development of the masticatory apparatus, as judged from the strength of the bite, is a determining factor in the incidence of dental caries.

The state of development of the masticatory apparatus, in turn, depends chiefly upon the amount of use and exercise to which it is subjected during the process of mastication. This is clearly illustrated in cases of unilateral mastication. Many individuals form the habit of chewing their food on only one side of the mouth, generally due to a painful condition on the other side. In many instances, unilateral mastication remains a habit long after the original cause has been eliminated. In general, individuals with normal bilateral chewing show little or no variation in the masticatory pressures recorded for the right and left sides. However, in cases of unilateral masticatory function, the unexercised side in many cases could exert only half or less the pressure produced by the functioning side.

News and Notes

American Association of Orthodontists Meeting Cancelled

The meeting of the American Association of Orthodontists, which was to have been held in May, 1943, has been cancelled.

MAX E. ERNST, Secretary
American Association of Orthodontists

New York Society Members in Service

Orthodontists who have been called into the Service and who are members of the New York Society of Orthodontists are listed below, along with their present addresses, so far as they are known as this time:

Active:

Maynard E. Cohen
Maurice Lee Donigan
Gerald Franklin
Major Denis D. Glucksman, 3rd General Hospital, Camp Ricker, Ala.
Lt. William R. Joule, Tilton General Hospital, Camp Dix, N. J.
Percy H. Lunn
Charles Mason
Capt. Joseph L. McDowell, 54th Evacuation Hospital, Camp Young, Calif.
D. R. Swinehart, Walter Reed Hospital, Washington, D. C.
A. L. Ungar
Major Sidney J. Zeitz, Station Hospital, Camp Gordon, Augusta, Ga.

Associate:

S. D. Goosman
Lt. Bernard Kniberg, Post Dental Surgeon, Camp Ritchie, Md.
Charles S. Jonas
L. A. Wagner

National Dental Salvage Program

The following announcement has been received from the National Dental Salvage Committee of the American Dental Association. Members of this committee are Dr. Henry A. Swanson, chairman, Dr. Harold J. Cronin, Dr. J. V. Gentilly, Dr. H. E. King, and Dr. H. B. Higgins.

Organization.—The Dental Salvage Program is headed by the American Dental Association Salvage Committee, consisting of a Chairman and four members. Dental Salvage Committees will be appointed within each state, consisting of a chairman and several members. The chairmen of the state committees should select representatives from the dental dealers and dental laboratories within their respective areas, to cooperate with the committees. In states where the National Dental Association (Negro) has members, the committee should request their cooperation.

All dental offices should be included in the program whether or not the dentist is a member of the American Dental Association.

Members of state committees should contact the General Salvage Committees in their communities and advise them of this program and request their support.

Purpose.—The war effort needs all scrapped and obsolete rubber and metal products to compensate for a shortage of new material in the production of the many items necessary for the "drive against the Axis."

No materials should be considered if they can possibly be used, can be made serviceable or will have to be replaced by new materials or equipment. Conservation of present material or equipment should be a prime objective of every dentist.

The salvage materials from dental offices should include the following items:

Rubber

Dam, tubing, hose, mats, bulbs from water and air syringes, washers, rubber tips from ends of anesthetic tubes, unvulcanized scrap.

Metal

Lead backings from x-ray films. Old copper and aluminum bands and scrap clippings therefrom.
Electro-deposited copper dies and models.
Scrap tinfoil or leadfoil.
Old electric wire.
Metal tubing (copper, tin, iron, and brass).
Broken or discarded steel operating instruments.
Discarded burs, mandrels, and mounted points.
Discarded or obsolete laboratory instruments and equipment.
Discarded or obsolete appliances and equipment, chairs, cuspidors, bracket tables, furnaces, motors, units, x-ray machines, stools, metal desks, chairs, tables, and cabinets, lights, fans, safes, and all appliances of discarded technique.
Discarded handpieces, straight, right and contra-angles.
Tin can containers (large).
Aluminum (mirror handles, old dentures, impression trays, and caps from novol anesthetic tubes).
Any other items containing rubber or metals.

Collections should be continuous for the duration.

Plan.—Under the Dental Salvage Plan, in cooperation with the General Salvage Section, Conservation Division, War Production Board, the following procedure will be instituted:

1. All dentists or contributors, whether or not they are members of the American Dental Association are urged to donate the needed material. Dental schools should be solicited, as well as laboratories.

2. Salvage depots or places where scrap material can be deposited should be designated by local committees.

3. Place the following *small* items in suitable separate containers (box, envelopes, etc.):

A. Rubber items
B. Tin and lead items
C. Copper and aluminum items
D. Burs, mandrels, mounted points.

4. All large equipment and appliances which cannot be easily moved should be listed and the list turned over to the committee so that arrangements can be made for the removal to a salvage depot.

5. Receptacles where material can be deposited should be placed in professional buildings and meeting places.

6. Dental dealers and laboratories should be urged to assist in the collection of the scrap material.

7. Disposition: Information relative to methods of disposition of scrap material, names and locations of scrap dealers, and any other details of the disposition of salvage can be secured from the General Salvage Committee in your immediate locality. Rubber, steel, iron, copper, brass, aluminum, lead items to be sold to junk or scrap dealers. Tin to be returned and sold to suppliers.

8. Proceeds from sale of material to be used to purchase War Savings Stamps and Bonds.

a. Stamps and Bonds to be turned over to the American Dental Foundation, Inc., to be held until date of maturity and then used for some purpose to be decided by the Foundation; or
b. Stamps and Bonds to be turned over to a component or State Society, to be held until date of maturity and then used for some specific purpose.

9. All official communications and notices to members by officers of state and component societies to include requests for dental salvage.

10. Request local newspapers to publicize the program.

In any area where the Dental Salvage Committee is not able to carry out this program, the dentists are urged to donate their material to the General Salvage Program in their own locality.

Reports.—Chairman of State Committees to report to Dr. Henry A. Swanson, Chairman, Committee on Dental Salvage, American Dental Association, Suite 500, 1726 Eye Street, N. W., Washington, D. C., the results of the Salvage Program:

1. Approximate amount of scrap collected.
2. Amount realized from sale of material.
3. Number of Bonds or Stamps purchased.
4. What assignment was made of Bonds or Stamps purchased.

Our aim is to "Get Out the Scrap" regardless of any financial returns that may result and may our efforts help to beat the Axis.

Pacific Coast Society Meeting Cancelled

The meeting of the Pacific Coast Society of Orthodontists, originally scheduled for February, 1943, has been cancelled.

EARL F. LUSSIER, Secretary-Treasurer

New York Society of Orthodontists

The spring meeting of the New York Society of Orthodontists will be held at the Waldorf-Astoria Hotel, New York City, March 8 and 9, 1943.

The AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY feels that its readers would be glad to be informed of the change of address and location of any orthodontists who have entered the Armed Services. If this information will be sent direct to the Editor, 8022 Forsythe Blvd., St. Louis, Mo., it will be published from time to time in the NEWS AND NOTES pages of the JOURNAL.

Note of Interest

Dr. J. H. Sillman will be at 72 School Street, Glen Cove, Long Island, Thursdays only. Practice limited to orthodontics.

The JOURNAL wishes to correct a statement which appeared in the News and Notes Department, November issue, on page 741. In the note on the meeting of the New York Society of Orthodontists, a case report was given as presented by Dr. Saul Knopf, M.D. The report was presented by Dr. Samuel N. Knopf, D.D.S., of Brooklyn, N. Y.

OFFICERS OF ORTHODONTIC SOCIETIES*

American Association of Orthodontists

President, J. A. Burrill - - - - - - - - - 25 East Washington St., Chicago, Ill.
Secretary-Treasurer, Max E. Ernst - - - 1250 Lowry Medical Arts Bldg., St. Paul, Minn.
Public Relations Bureau Director, Dwight Anderson - 292 Madison Ave., New York, N. Y.

Central Association of Orthodontists

President, Harold J. Noyes - - - - - - - - - - 55 E. Washington St., Chicago, Ill.
Secretary-Treasurer, L. B. Higley - - - - - - - - 705 Summit Ave., Iowa City, Iowa

Great Lakes Society of Orthodontists

President, Henry D. Cossitt - - - - - - - - - - 942 Nicholas Bldg., Toledo, Ohio
Secretary-Treasurer, C. Edward Martinek - - - - - 661 Fisher Bldg., Detroit, Mich.

New York Society of Orthodontists

President, E. Santley Butler - - - - - - - - - 55 Locust Ave., New Rochelle, N. Y.
Secretary-Treasurer, Norman L. Hillyer - - - - - Professional Bldg., Hempstead, N. Y.

Pacific Coast Society of Orthodontists

President, Ben L. Reese - - - - - - - - - - Roosevelt Bldg., Los Angeles, Calif.
Secretary-Treasurer, Earl F. Lussier - - - - - - 450 Sutter St., San Francisco, Calif.

Rocky Mountain Society of Orthodontists

President, George H. Siersma - - - - - - - - - 1232 Republic Bldg., Denver, Colo.
Secretary-Treasurer, Curtis L. Benight - - - - - - 1001 Republic Bldg., Denver, Colo.

Southern Society of Orthodontists

President, M. Bagley Walker - - - - - - - - - 618 Medical Arts Bldg., Norfolk, Va.
Secretary-Treasurer, E. C. Lunsford - - - - - - - 2742 Biscayne Blvd., Miami, Fla.

Southwestern Society of Orthodontists

President, E. Forris Woodring - - - - - - - - - - Medical Arts Bldg., Tulsa, Okla.
Secretary-Treasurer, R. E. Olson - - - - - - - Union Nat'l Bank Bldg., Wichita, Kan.

American Board of Orthodontics

President, William E. Flesher - - - - - 806 Medical Arts Bldg., Oklahoma City, Okla.
Vice-President, Frederic T. Murlless, Jr. - - - - 43 Farmington Ave., Hartford, Conn.
Secretary, Bernard G. deVries - - - - - - - Medical Arts Bldg., Minneapolis, Minn.
Treasurer, Oliver W. White - - - - - - - - 213 David Whitney Bldg., Detroit, Mich.
James D. McCoy - - - - - - - - - 3839 Wilshire Blvd., Los Angeles, Calif.
Joseph D. Eby - - - - - - - - - - 121 E. 60th St., New York, N. Y.
Claude R. Wood - - - - - - - - - Medical Arts Bldg., Knoxville, Tenn.

Harvard Society of Orthodontists

President, Harold J. Nice - - - - - - - - - 475 Commonwealth Ave., Boston, Mass.
Secretary-Treasurer, Edward I. Silver - - - - - - - 80 Boylston St., Boston, Mass.

Washington-Baltimore Society of Orthodontists

President, Kyrle W. Preis - - - - - - - - - - 700 Cathedral St., Baltimore, Md.
Secretary-Treasurer, Meyer Eggnatz - - - - - - Medical Arts Bldg., Baltimore, Md.

Foreign Societies†

British Society for the Study of Orthodontics

President, S. A. Riddett
Secretary, R. Cutler
Treasurer, Harold Chapman

---

*The Journal will make changes or additions to the above list when notified by the secretary-treasurer of the various societies. In the event societies desire more complete publication of the names of officers, this will be done upon receipt of the names from the secretary-treasurer.

†The Journal will publish the names of the president and secretary-treasurer of foreign orthodontic societies if the information is sent direct to the editor, 8022 Forsythe, St. Louis, Mo., U. S. A.